

**T.C.  
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**AVRUPA TOPLULUĐU ENSTİTÜSÜ**

**AB SİYASETİ VE ULUSLARARASI İLİŐKİLER  
ANABİLİM DALI**

**THE EU ENERGY POLICY AND THE IMPORTANCE  
OF ENERGY IN TURKEY'S ACCESSION TO THE EU**

**YÜKSEK LİSANS TEZİ**

**Utku TUNCAY**

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## LIST OF ABBREVIATIONS

- ALTENER:** Programme for the Promotion of Renewable Energy Sources  
**BO:** Build-Operate  
**BOT:** Build-Operate-Transfer  
**BOTAŞ:** Boru Hatları ile Petrol Taşıma A.Ş.  
**BTC:** Baku-Tbilisi-Ceyhan  
**BTE:** Baku-Tbilisi-Erzurum  
**CEEC:** Central and Eastern European Countries  
**CO<sub>2</sub>:** Carbon Dioxide  
**CUTE:** Clean Urban Transport for Europe  
**EAP:** Environmental Action Programme  
**EC:** European Community  
**ECCP:** European Climate Change Programme  
**ECSC:** European Coal and Steel Community  
**ECT:** The Energy Charter Treaty  
**ECU:** European Currency Unit  
**EEC:** European Economic Community  
**EEC:** European Energy Charter  
**EMRA:** Energy Market Regulatory Authority  
**EU:** European Union  
**EURATOM:** European Atomic Energy Community  
**GDP:** Gross Domestic Product  
**GNP:** Gross National Product  
**MS:** Member State  
**OECD:** Organisation for Economic Co-operation and Development  
**OPEC:** Organization of Petroleum Exporting Countries  
**RES:** Renewable Energy Sources  
**SAVE:** Specific Actions for Vigorous Energy Efficiency  
**SCP:** South Caucasus Pipeline  
**SEA:** Single European Act  
**TACIS:** Technical Assistance for Commonwealth of Independent States  
**TEAŞ:** Türkiye Elektrik Üretim-İletim A.Ş.  
**TEDAŞ:** Türkiye Elektrik Dağıtım A.Ş.  
**TENS:** Trans-European Networks  
**TOOR:** Transfer of Operating Rights  
**UNFCCC:** United Nations Framework Convention on Climate Change  
**USA:** United States of America  
**USSR:** Union of Soviet Socialist Republics  
**WE:** Western Europe

## GENERAL KNOWLEDGE

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## ABSTRACT

### THE EU ENERGY POLICY AND THE IMPORTANCE OF ENERGY IN TURKEY'S ACCESSION TO THE EU

Significance of energy with regard to economy of nation-states and international relations has been increasing day by day in parallel with the increasing need for energy. Fast depletion of world fossil reserves, in last years lead states and supranational bodies revising their energy policies. The European Union as the best-integrated supranational body in the world tries to develop a common energy policy. On the other hand, Turkey tries to accommodate this policy area prior to membership negotiations with EU. With this study EU's stages of forming common energy policy and its main pillars as well as Turkey's performance in alignment are examined. Turkey could not yet take necessary steps for complying with the energy policy of EU with respect to its environmental dimension, but it is observed that she progressed on the common market and energy security issues. Moreover, energy field with the realisation of East-West Energy Corridor is underlined as a significant trump card for Turkey in EU membership.



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## ÖZET

### AB ENERJİ POLİTİKASI VE TÜRKİYE’NİN AB’YE KATILIMINDA ENERJİNİN ÖNEMİ

Enerjinin ulus-devletlerin ekonomisi ve uluslar arası ilişkilerdeki önemi enerjiye duyulan ihtiyacın artmasıyla orantılı olarak gün geçtikçe artmaktadır. Dünya fosil rezervlerinin hızla tükenmesi, son yıllarda devlet ve devletler üstü yapıların enerji politikalarını gözden geçirmelerine neden olmuştur. Avrupa Birliği dünyadaki en bütünleşmiş devletler üstü yapı olarak ortak bir enerji politikası geliştirmeye çalışmaktadır. Diğer yandan Türkiye de AB ile başlayacağı üyelik müzakereleri öncesi bu politika alanına uyum için çalışmalar yapmaktadır. Bu çalışma ile AB’nin ortak enerji politikasını oluşturma safhaları ve ortak politikanın temel sütunları ile Türkiye’nin uyumdaki performansı incelenmiştir. Türkiye’nin AB enerji politikasının çevre boyutuyla uyumu için henüz gerekli adımları atmadığı, fakat ortak Pazar ve enerji güvenliği alanlarında ilerlemeler sağladığı görülmüştür. Ayrıca enerjinin, Doğu-Batı Enerji Koridorunun gerçekleşmesiyle, Türkiye’nin AB üyeliği için önemli bir koz olduğunun altı çizilmiştir.

## INTRODUCTION

After the Industrial Revolution, the world has become irreversibly dependent on energy resources. Fossil fuels, in sequence coal and oil became the essence of major modern economic and political systems. They make nation-states powerful who hold them.

Oil or “Black Gold” has been the most valuable and strategic commodity for the 20<sup>th</sup> century. This value even increased in the beginning of the 21<sup>st</sup> century, as functioning of the capitalist world system highly depends on it.

Most developed nations in the system do not have commensurate oil reserves to feed their economy. Instead, they supply this strategic commodity from outside. This has made oil even more significant especially with regard to international relations arena after the First World War. Nations who hold this strategic tool exert power on other nations and nations who can control and manipulate the world reserves can also be powerful in international relations and world politics. As a matter of fact, it became apparent or hidden cause of several wars, even the most recent ones like Iraq war. In this context, it is not surprisingly that the most instable region of the world that confronted several wars in history is at the same time the richest region for oil reserves. It is the Middle East where any developed nation in the world more or less sustains its economic system over fossil fuels of the region.

Due to the fore mentioned reasons, there is a reality that world is highly dependent on the energy of oil. Therefore, nation states are ready for diplomatic relations or wars over oil resources. Nevertheless, there is another reality that oil or other fuel resources are not immune from being finite; instead they are fundamentally limited and depletable. In that sense, there is a serious challenge before many established energy policies and human lives. When world oil reserves reached its peak production and close to total depletion towards the end of this century, according to predictions, we will be forced to learn how to live without oil. Especially after reaching peak in oil production, world powers would start to run into even more severe

competition over oil resources. Consequently, sooner or later human beings of the 21<sup>st</sup> century will have to find alternative resources to fossil fuels in order to sustain the current established economic and political systems.

No world power is immune from this reality, neither the United States nor the European Union (EU). Turkey will also face with this scarcity of energy resources. European Union, as the second largest energy consumer in the world after the United States, seems to be aware of both the significance of fossil fuels and their finite nature in sustaining its welfare. Union tries to create its common energy policy in order to take efficient and effective steps in tackling the fore mentioned problem. In this energy policy, union has three priorities, sustaining its common internal market, securing its energy supply, and protecting its environment. In this context, EU takes initiatives in the form of white and green papers, commission proposals, council resolutions, directives, and international agreements for the aim of creating its common energy policy.

In the light of these points, this thesis is mainly configured on the EU's struggle to create its common energy policy with special reference to three pillars mentioned above. Turkey is also taken as the main focus of analysis in thesis with reference to its candidacy to EU and the start of accession negotiations on 3 October 2005. In this context, this thesis aims at discussing the compatibility between the energy policy of Turkey with that of the EU and the significance of the compatibility to be reached, both for the European Union and for Turkey.

In the first part of the thesis, EU's energy policy will be analysed in the light of the historical developments and main dimensions of it. In this analysis, the history of energy policy of the union will be separated into three main turning points. These are the periods first beginning from the 50s to the oil crises of 70s, second from the 70s to 85, and last to the present. Secondly, main dimensions of EU energy policy will be given as the EU's solutions to possible energy related problems in the future. Lastly, the effects of the last enlargement wave with ten new members on EU's energy policy will be discussed.

Second part of the thesis is separated for Turkey's energy chapter in EU membership. These are basically the efforts that Turkey has made in order to align with EU acquis in each dimension before the negotiations.

In the last part, energy will be taken as a trump card for Turkey in EU membership through securing EU's energy supply. Turkey's cooperation with EU under EU-Med Partnership and the new phenomenon for Turkey as becoming one of the main energy outlets for EU owing to its geostrategical position will be analysed. Only several pipelines passing through Turkey will realize this new mission of Turkey. These are also means in achieving Turkey's new option to exert influence in world politics.

As a matter of fact, this thesis will figure out the EU Energy Policy and make an analysis whether there is compatibility between Turkey and EU's energy policies before the accession negotiations. Moreover, thesis will try to reveal the significance of Turkey for EU and vice versa with regard to energy and thus the significance of any compatibility between the policies.

## 1. EU'S ENERGY POLICY

Energy is the most valuable but at the same time the scarcest source for the European Union. Highly developed European countries are dependent upon energy resources in order to sustain their economies and their wealth. For these reasons, European Union has been dealing with the energy issues since its formation. Indeed, European Communities and today's European Union started its formation as an energy community, European Coal and Steel Community (ECSC), in 1952, after the 2<sup>nd</sup> World War. It was a treaty among the six founders through which the leading war industry, run by coal and steel, can be managed in one hand so that any disagreement on the ownership of these resources in the continental Europe, between Germany and France, cannot create any other wars. Afterwards, the Treaty establishing European Economic Community (EEC), and European Atomic Energy Community (EURATOM) Treaty on nuclear energy were signed in 1957.

Nevertheless, EU could not be successful to take further steps to complete common energy policy afterwards. The great resistance has come from the Member States, despite the existence of the mentioned treaties. As Pamela and Ian Barner stated “the reality has been that the dominant hand has been held by the member states, largely because of their ownership of parts of the energy sector and their control over fiscal policy”<sup>1</sup>. This national way of thinking over energy has blocked all the ways on creating a single energy policy for years. Even during the oil crisis, member states prefer to act on their own in order to protect themselves from the crisis.

Afterwards, due to the developments in world energy markets, member states' resistance was broken to a certain limit and they realized that energy is an important sector for EU to develop a single market and a consistent industrial policy. In this context, EU became aware of the necessity that energy sector should also be part of the single market. In other words, as the single market is developing, simultaneously, the internal energy market has to be developed.

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<sup>1</sup> Pamela M. and Ian G. Barnes, **Environmental Policy in the European Union**, UK: Edward Elgar Publishing Limited, 1999, p. 229

## 1.1 Historical Background

The historical background of the energy policy will give thorough information on the way to develop a common energy policy. We are going to examine this history in three parts that are also the main turning points of history. First period starts from the beginning of the ECSC till the first oil crisis in 1973. Second part begins with the oil crises and ends in 1985 in which EU has seen the consequences of the crises in all sectors. Lastly, we will examine the developments from the beginning of 1985 till the present when EU becomes more aware of the necessity to develop a common energy market due to the negative results of the two oil crises of the previous decade.

### 1.1.1 1950s-Oil Crises of 1970s

European Union is a product of its Member States who agreed on usage of the Community's energy sources with Paris Treaty of 1952 or "European Coal and Steel Community Treaty".

Five years after the formation of ECSC, six countries signed Rome Treaty and founded the European Community officially in 1957. At the same time, another energy related treaty, EURATOM Treaty was signed for the nuclear energy technology and its usage. All the indicators showed that the new Community would be operational through its energy policy. However, due to its nature, energy is not a policy area where the nation-states easily delegate their authority to a supranational body. Therefore, 1957 Rome Treaty did not list energy among the Community's competency areas and thus initiated a long way of forming a Community energy policy.

In 1962, the European Commission prepared a 'Memorandum on Energy Policy'. Two years later, Member States signed a protocol under ECSC, stating ECSC's objectives about energy policy. Those were the first steps on the way of forming a Community energy policy. Through this protocol, four objectives would be reached, which are the fair competition among different energy sources, security of supply, lower prices, and the freedom to choose for the customers.

In 1967, when three communities, EEC, ECSC and EURATOM, merged and constituted the "European Community" (EC), the Commission fastened its initiatives on the way of forming a common energy policy. It was the 'First Orientation to a Common Energy Policy', which

reflected the fundamental problems of the EU energy position and established the principles of EU policy, namely to ensure supply at the lowest possible price<sup>2</sup>. The means to achieve this objective were common market for energy products and coordination of the member states' energy policies. Despite these efforts, the Commission proposals and initiatives could not be implemented due to Member States' resistance.

### 1.1.2 Oil Crises of 1970s-1985

European Community's dependency on oil affected the European economies for the very first time. Organization of Petroleum Exporting Countries (OPEC) raised the oil prices by more than 475 per cent after the first oil shock in 1973, and by another 134 per cent after the second oil shock in 1979<sup>3</sup>. Then, European countries became aware of the fact that they are vulnerable to any fluctuations and on oil prices and amounts. This was a signal that European countries should do more about securing their energy supply.

Oil crisis revealed the fact that there is not a European Community policy on energy field. In that sense, the first reactions to energy crisis were national. Member States tried to protect themselves from the crisis by taking national precautions. They tried to diminish their dependency on imported energy. Therefore, the crisis brought the energy issue more to the national level rather than to EC level.

Eventually, after the crisis, towards the mid 80s, Member States became aware of the need of a common energy policy in order to be protected from such crisis, and secure their energy supply. As it will be mentioned, there were some other reasons underlying this perception as the need to create an internal market in all sectors and to protect environment, besides the detrimental effects of oil crisis due to national actions.

Owing to 1973 oil crisis, the Council took some steps. First of all, it adopted the "Strategy of New Energy Policy" in September 1974\*. Through this strategy, EC aimed at increasing the security of energy supply and protecting the environment.

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<sup>2</sup> Willem Molle, **The Economics of European Integration**, Theory, Practice, Policy, England, 1997, p.301

<sup>3</sup> Theo Hitiris, **European Union Economics**, Great Britain, 1998, p.328

\* Council Resolution of 17 September 1974 concerning a new energy policy strategy for the Community (OJ C153, 09/07/1975) p.0001-0002

On 17 December 1974, the Council adopted a Resolution concerning Community energy policy objectives for 1985<sup>4</sup>. There were five objectives. First of all, dependency on imported energy, that is 63%, would be decreased to 50%, if possible to 40%. Secondly, total energy consumption of EC in 1973, would be diminished as 15% for 1985. Besides these, new natural gas reserves would be researched and gas production would be increased. Moreover, EC would take hydroelectricity and geothermal power seriously more than ever. And lastly, through nuclear energy, EC would increase the proportion of electricity in total energy consumption.

These Council Resolutions, adopted after the first oil crisis, were unique, because for the first time EC was setting some objectives on energy issue to be reached at a certain period of time.

In 1979, second oil crisis once more brought up the issue of energy prices and security of energy supply on the agenda. This time, EC should take more precautions about her energy. In this context, in June 1980, the Council set new objectives for 1990 and decided convergence of energy policies of each Member States<sup>5</sup>. According to this new Resolution, Member States would follow energy saving policies, would decrease the amount of oil consumption and its import level. In addition to these, Member States were asked to comply with the Community's energy policy objectives.

Another precaution for the security of energy supply was the diversification of imported energy sources. 1979 oil crisis made this diversification a must. When European countries were heavily dependent on Gulf oil, they were at the same time open to any instability in the region, which was ever more instable region at that time than today.

### **1.1.3 1985 to the Present**

This was the era in which EU's three pillars on energy policy become definite. In this era, new policy of diversification in imported energy sources succeeded. OPEC cartel on oil was broken and energy prices fell down in mid 1980s. New developments led to the establishment of a new energy market with new conditions. Therefore, EC was ready to readjust its energy policy to these conditions. For this reason, in September 1986, EC Council adopted new energy policy

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<sup>4</sup> Council Resolution of 17 December 1974 concerning Community energy policy objectives for 1985 (OJ C153, 09/07/1975) p. 0002-0004

<sup>5</sup> Council Resolution of June 1980 concerning Community energy policy objectives for 1990 and convergence of the Member States (OJ No. C 149, 18/06/80 p. 0001



objectives to be reached in 1995<sup>6</sup>. According to new objectives, first of all, proportion of oil consumption in the overall energy consumption would be decreased to 40%. Secondly, consumption level of natural gas would be stable. As the third objective, any measurements providing for the optimum security conditions for nuclear plantations would be taken. And lastly, EC should direct itself to new and renewable energy sources including hydroelectric power so that they can give plus to energy balance.

Reasons under these targets were the similar to those under former Resolutions: providing for the security of energy supply, minimum risk for the energy market, especially for the oil market, minimum risk for the price fluctuations, diversification of energy resources, improving the internal energy market, balancing energy and environment.

In this period, environment has become an important factor in forming a common energy policy. This was due to the change in understanding of welfare and global environmental crises like Chernobyl disaster in 1986.

### **1.1.3.1 Single European Act (SEA)**

SEA is one of the most important turning points of EU's common energy policy history. Until mid 1980s, EC could not be successful in implementing the Resolutions that have been adopted by the Council. Instead, the objectives stayed on the papers as part of the theory of forming a common energy policy. Those were the Member States who blocked EC to act on energy. National interests and priorities, and the differences in energy policies among the member states paved this way.

Nevertheless, in second half of 80s, this indifference to an EC energy policy started to change due to two major reasons. OPEC cartel on energy prices was broken owing to the diversification of energy supply. Besides, newly independent Central and Eastern European countries entered into the market. These new opportunities on energy supply and the environmental reasons made some Member States become aware of the need to re-orientate EC energy policy. This new orientation was directed to the creation of a new internal market on energy. As it is stated, after 1985, stress was put on the creation of the internal energy market,

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<sup>6</sup> Council Resolution of 16 September 1986 concerning new energy policy objectives for 1995 and convergence of the policies of the Member States (OJ C 241, 25/09/1986) p.0001-0003

and in 1986 a Council resolution heralded a new 'market oriented approach', with emphasis on competition as the principal mechanism for securing the Community's future energy security<sup>7</sup>.

Single European Act of 1987 started a new phase for the energy policy as it started a new phase in the European integration process. According to the treaty, a new complete internal market was to be established. In this sense, the Act gave priority to the establishment of the internal market. This priority also urged EC to act on energy sector, to create an internal energy market. According to Pamela and Ian Barnes “the sector is a prime target for liberalization and deregulation, and it was anticipated that improvements here would lead to improvements in overall competitiveness within the European economy”<sup>8</sup>. In fact, SEA did not mention about a common energy policy as a separate heading. Instead, for the SEA, internal energy market was an indispensable part of the common market and the environmental factors are the ones that led EC to act on energy. Moreover, SEA brought about some procedural changes in favour of energy policy. For example, instead of the unanimity, the majority voting would be the system in proposals about internal energy market.

Beyond the treaty, there was another important factor backing efforts to establish an internal energy market. It was the will of big private energy companies. As it is stated, large energy companies favour a free market seeking to extend their markets. At the same time, they are wary of being in a disadvantageous position due to national differences that exist in the basic political conditions of the energy sectors<sup>9</sup>.

To sum up, SEA was a turning point for EU energy policy, despite the fact that energy policy owed this re-orientation to environmental and free market policies. In other words, it was not decided to create a common energy policy, but it was decided to take initiatives in energy field for the creation of internal market and for environmental concerns. Thus, EC energy policy linked to the environmental and common market policies and their DGs in the Commission, namely Competition Directorate (DG IV), the Directorate General for Customs Union and Indirect Taxation (DG XXI), the Industry Directorate (DG III), the Directorate for Internal

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<sup>7</sup> Nils C. Bandelow, Diana Schumann, Ulrich Widmaier, 1999, <http://homepage.ruhr-uni-bochum.de/nils.bandelow/green.html> (July 30, 2004)

<sup>8</sup> Barnes and Barnes, p.229

<sup>9</sup> Bandelow, Schuman and Widmaier, <http://homepage.ruhr-uni-bochum.de/nils.bandelow/green.html>

Market and Financial Services and the Environmental Directorate (DG XI), besides the Energy Directorate (DG XVII)<sup>10</sup>.

### 1.1.3.2 European Energy Charter (EEC) and the Energy Charter Treaty (ECT)

New developments of the beginning of 1990s made energy even more important issue in international relations, particularly due to the collapse of Union of Soviet Socialist Republics (USSR) that gave freedom to countries rich in energy sources. Following the collapse, European Community initiated European Energy Charter and three years later, several countries in Europe and in the world signed the Energy Charter Treaty.

38 countries signed European Energy Charter in 1991. Through this Charter, EC aimed at supporting newly independent Central and Eastern European countries and the former USSR economically and politically concerning their energy infrastructures. All these newly independent states were in need of new technology with respect to their energy infrastructures. Indeed, this charter has advantages for both sides, Western and Eastern sides.

According to Schroth<sup>11</sup>:

On the Eastern European side, this means that by gaining access to Western capital, expertise and technology, the former planned economies could improve the performance and environmental standards of their energy management. On the Western side, the proposed cooperation is intended to give the European countries more stable access to the energy resources of the former Soviet Union.

However, the Charter is not a legally binding and operational, instead it will be a framework that becomes operational through several specific treaties like “Energy Charter Treaty”.

More than 50 countries including United States of America (USA), Australia and Japan signed Energy Charter Treaty in Lisbon on 17 December 1994. It was a European initiative and became part of European Union law. However, the signatories are from all over the world,

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<sup>10</sup> Bandelow, Schuman and Widmaier, <http://homepage.ruhr-uni-bochum.de/nils.bandelow/green.html>

<sup>11</sup> Hans-Jurgen Schroth, “The Energy Charter Treaty (ECT) in the Context of the Treaties of the European Union” in **The Energy Charter Treaty**-An East-West Gateway for Investment and Trade, edited by Thomas W. Walde, London: Kluwer Law International Ltd., 1996, p. 241

mostly from the developed nations. On the other hand, the main oil producers such as Maghreb countries and Gulf States have observer status with regard to the treaty.

This treaty is a multilateral and a sectoral treaty aiming at “energy efficiency”. Means to achieve energy efficiency are based on free market system such as market access, and competitive markets. In other words, it is obvious that one of the major aims of this treaty is to help the transformation process of former Soviet Republics from socialist economy to liberal economy.

This treaty is crucial, as not only each single Member State of EU, but also EU itself is a party to Energy Charter Treaty for the aim of enhancing a single European energy market. According to Schroth, “By entering into the ECT the EU Member States and the EU itself have endeavoured to formulate a new European energy policy and to bring about a new type of pan-European sectoral cooperation scheme with other European and non-European countries having a specific link with the EU”<sup>12</sup>.

On the other side, during 1990s, a new natural phenomenon entered into global agenda. It is “global climate change”. Due to this new threat, the global actors started to be interested in environmental concerns. Several world summits had been arranged in order to find solutions to environmental disasters and global climate change. The guilty is the industry and energy production, thus indirectly the industrialized countries who produce carbon dioxide emissions that keep the heat inside the atmosphere.

What EU had done was firstly levying on a special environmental tax on energy so that carbon dioxide emissions can be limited. Nevertheless, in order to implement this new tax, EU demanded USA and Japan to levy on similar tax. They did not accept this offer and this tax could not be levied on.

Further efforts had been made for environmental concerns. In February 1993, EU Council adopted a “Community Programme of policy and action in relation to the environment and sustainable development”. This programme is aimed at taking precautions and policy offers

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<sup>12</sup> Walde, p.247

based on the assumption that 25% increase in total energy consumption and 20% increase in carbon dioxide emissions would be realised in 2010 compared to 1987 levels<sup>13</sup>.

In December 1995, the Commission announced a White Paper, “An Energy Policy for the EU”\*. This White Paper set out the general objectives in energy field that should reconcile with three main priorities, namely the free market, security of supply and protection of the environment.

In the light of all these developments, new trend with respect to energy is “renewable energy”, besides the completion of the single market. EU has been directing itself to renewable energy resources due to environmental reasons and security of her energy supply. Concerning the renewables, EU acted immediately and in 1997, EU Commission announced the White Paper, “Strategy and Action Plan for Renewable Sources of Energy”\*\*. This White Paper includes both predictions for 2010 concerning the renewable sources, and the objectives to be reached through the intensive use of renewable energy sources.

Two founding treaties of 90s, the Maastricht Treaty of 1992 and the Amsterdam Treaty of 1997 did not also include a separate chapter for energy policy like the other founding treaties. However, due to the linkages of EU energy policy to some other policy areas, there held some positive statements about energy policy. Maastricht Treaty mentioned about the creation of Trans-European Networks (TENs), which would be effective in connecting the energy distribution networks in Europe wide. Besides it, Treaty indirectly set some actions about energy policy for several times, when it is mentioning about the environmental policy, the internal market, and common commercial policy.

Amsterdam Treaty, on the other hand, superficially deals with energy policy. For Pamela and Ian Barnes, Amsterdam Treaty acted for the energy policy indirectly of which Article 2 called ‘sustainable and non-inflationary growth respecting the environment’ was significant for

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<sup>13</sup> Resolution of the Council and the Representatives of the Governments of the Member States, A European Community Programme of policy and action in relation to the environment and sustainable development (OJ C 138, 17/05/1993) p.0001-0004

\* White Paper, An Energy Policy for the European Union, COM (95) 682 final, 1995, [http://aei.pitt.edu/archive/00001129/01/energy\\_white\\_paper\\_COM\\_95\\_682.pdf](http://aei.pitt.edu/archive/00001129/01/energy_white_paper_COM_95_682.pdf), (March 20, 2005)

\*\* Communication from the Commission, Energy for the Future: Renewable Sources of Energy, White Paper for a Community Strategy and Action Plan, COM (97) 599 final (26/11/1997)

energy policy in the sense that it required that there be a balance between price stability, economic growth and environmental protection<sup>14</sup>.

When we look at the developments on energy policy till 2000s, we see limited actions at EU level. Mostly, the solutions and Resolutions stayed on the paper; they could not be fully implemented. However, there were signs revealing that EU was becoming aware of the significance of forming a common energy policy for the new millennium as the significance of energy is increasing more than ever.

## 1.2 Main Dimensions of EU Energy Policy

European Union energy policy is directed to the individuals. Supplying high quality energy with lower prices to the consumers is the main essence of this policy. Although it is a question whether an energy policy is or can be formed in near future, there is a fact that EU set out its principles and objectives to be reached concerning the energy field.

EU mostly takes initiatives under Energy and Transport DG in the Commission. At the European level, energy and transport issues fall under the jurisdiction of the Directorate-General for Energy and Transport (Energy and Transport DG) since January 2000. Energy and Transport DG mainly develops community policies in the related sectors, handles state aids and manages the funding programmes for Trans-European Networks (TEN) and technological development and innovation.

EU declared its priority areas concerning energy for the very first time in the introduction paragraph of the European Commission White Paper announced in 1995 “An Energy Policy for the European Union”. It made clear three pillars of energy policy for the first time.

According to White Paper<sup>15</sup>:

Energy policy must form part of the general aims of the Community’s economic policy based on market integration, deregulation, limiting public intervention to what is strictly necessary in order to safeguard the public interest and welfare, sustainable

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<sup>14</sup> Barnes and Barnes, p. 234

<sup>15</sup> White Paper, An Energy..., [http://aei.pitt.edu/archive/00001129/01/energy\\_white\\_paper\\_COM\\_95\\_682.pdf](http://aei.pitt.edu/archive/00001129/01/energy_white_paper_COM_95_682.pdf), (March 20, 2005).

development, consumer protection, and economic and social cohesion. However, beyond those general aims energy policy must pursue aims that reconcile competitiveness, security of supplies and protection of the environment...

Under this headline, we are going to analyse the creation of a common EU energy policy with its three main dimensions, namely market liberalisation, security of energy supply and environmental concerns. In analysing the policy, we will examine the extent of the implementation of all the regulations, directives and other EU initiatives concerning these objectives.

### **1.2.1 Single Energy Market- Market Liberalisation**

First pillar of EU energy policy is the “Single Energy Market”. It is expected that in energy sector, free market will provide increase in efficiency; provide innovation, right to choose for the consumers, better services, lower prices and the rational use of the energy resources. Therefore, a better management of energy market would be provided overall.

The process of opening the energy market, respectively electricity and gas sectors, to free competition started later than the opening other common market components of EU. It was the nature of energy sector, which prevents it from this early opening. Due to strategic importance of the sector and structural differences among member countries, each member state insisted on pursuing its own national energy policy till the end of 1980s. In member countries and other industrialised countries, states always intervened in energy markets, especially in electricity and gas markets. This intervention is legitimised through the characteristics of the sector.

Gamze Öz lists these factors as follows<sup>16</sup>:

First of all, energy sector has a natural monopolistic structure where transmission and distribution is done by a single company. Secondly, for years, energy has been subject to public service, so been regulated by the governments. Besides these, energy sector has its strategical importance in relation to general economy and military power. And lastly, energy sector requires capital and technology intensive investments, so it is difficult for the private enterprises to enter into market.

<sup>16</sup> Gamze Öz, “Avrupa Birliği ve Türkiye’de Enerji Piyasalarında Rekabet Hukukunun Uygulanması”, **AB’nin Enerji Politikası ve Türkiye**, 1. baskı, Ankara: Ulusal Politika Araştırmaları Vakfı, 2004, p. 47

These factors kept the sector regulated till the end of 80s. Only after 1988, creation of a single energy market started actively after it was understood that the energy markets were deeply affected by single market legislation, especially in the areas of public procurement, environment and tax harmonisation. In other words, in order to create a single European market, energy sector had also to be opened.

Due to the reasons mentioned above, European Commission could not stay inactive. Regulated energy markets of member countries that prevent the creation of a common energy market were obstacles in forming the Single European Market. In 1988, the Commission declared the “White Paper on Energy Policy” which investigates each energy sector in Europe in order to initiate the liberalisation in these sectors\*.

In that sense, it is worth to examine each sector, subject to market opening from the very beginning of the European Communities. We give the priority to two sectors, electricity and gas, where the opening is a difficult road to proceed, and newly started. We will then examine the oil and coal sectors, which are among the first liberalised sectors in EU.

### **1.2.1.1 Electricity and Gas Sectors**

Electricity and gas sectors have always been subject to state regulation mechanisms since the creation of European Community. While there is relatively a single market in coal and oil, electricity and gas sectors were not subject to single market mainly due to nature of these sectors. Electricity and gas has to be transmitted and distributed through networks, and lack of these networks Europe-wide makes the liberalisation process more difficult.

**Electricity:** In European Union, electricity generation has been based on a monopolistic structure and national markets for decades. The year 1996 is a turning point for electricity market. In that year, the Council adopted “Electricity Directive” through which fair competition in trading and generating electricity became a rule in all over the union.

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\* **White Paper on Energy Policy**, European Commission, COM 88 174, 1988



This “Electricity Directive” mainly permits the producers to establish new electricity generation plants in any place within the EU and generates electricity; makes the rules concerning the licences effective and transparent; gives right to medium and big electricity consumers to choose where to buy electricity<sup>17</sup>. In this context, the main rule is the right to choose in electricity internal market. Beyond this general content, this directive has brought detailed arrangements and objectives for the sector. In electricity, minimum target for the opening up the market was 30% for the year 2000, and 35% for 2003.

1996 Directive was repealed and the arrangements about the sector has been renewed and enlarged by the Directive 2003\*. This new Directive has brought new tasks for the member states. According to the Directive, member states must impose on undertakings operating in the electricity sector, public service obligations relating to the quality and price of supply, environmental protection, security of supply, as well as energy efficiency. Secondly, all member states must ensure all households and small enterprises enjoy the right to reach electricity with a specified quality at reasonable and transparent prices, and ensure the third party access to the transmission and distribution system for all eligible customers. Member states must also take measures to protect vulnerable consumers. Besides these, Directive states that the member states must establish an *independent transmission system operator* through which there would not be any base for discrimination against new comers to the market<sup>18</sup>.

The amending Directive has brought forward the opening of the electricity market for all non-household costumers by July 2004 and for all costumers by July 2007<sup>19</sup>. When we look at the market openings of member states till today, we see different levels depending on the member country. In this context, we have three groups of member countries according to their level of market openings; seven member countries have opened their markets to competition as 100%, which are Austria, Denmark, Spain, Germany, Finland, Sweden, and UK; thirteen countries have opened between 30-100%, which are Belgium, France, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Poland, Czech Republic, Slovakia, Hungary and

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<sup>17</sup> **AB Enerji Politikası:** Pazarın Açılması, Ekonominin Desteklenmesi, Avrupa Birliği Avrupa Komisyonu Türkiye Temsilciliği, Ankara, 2000, p. 04

\* Directive 2003/54/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in electricity and repealing Directive 96/92/EC

<sup>18</sup> Directive 2003/54/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in electricity and repealing Directive 96/92/EC,

<http://www.europa.eu.int/scadplus/leg/en/lvb/l27005.htm>, (December 20, 2004)

<sup>19</sup> EC Directorate-General for Energy and Transport, **2003-Annual Energy and Transport Review**, Luxembourg, 2004, p. 32

Slovenia; and five countries have done as less than 30%, which are Estonia, Latvia, Lithuania, Southern Cyprus, and Malta<sup>20</sup>.

There is a positive result of this market opening in member countries. Whether or not it is the direct result of this market opening, we observe price reductions in electricity in some member states. According to the data, “on the basis of big consumers, commercials and households, we see lower prices in Germany, UK and Austria. In addition to these, in Sweden, we see prices stable or in a tendency to decrease and even relatively lower prices”<sup>21</sup>.

**Gas:** Gas sector is the other one where the liberalisation process was initiated lately. Gas market has also been based on the national markets of member countries. Like electricity sector, these national behaviours on the sector created monopolistic market structures such as centralised and decentralised systems, public and private ownership monopolies. However, in a few member countries like UK, free market rules have been applied in the sector.

The Council adopted Gas Directive in 1998, 2 years later than the electricity directive. Thus, liberalisation process in the sector started throughout the union. On 26 June 2003, a new Directive repealed the existing one, which sets a target for the opening and the general principles for the market opening\*.

This new directive sets out detailed rules on the organisation and functioning of the natural gas sector. First of all, it brings some tasks for the member states about the public service obligation and the customer protection in price, environment, and security of supply concerns. Secondly, it sets out operators’ tasks, technical rules, and regulates organisation of access to the system, authorisation procedures, and the structure and functioning of the transmission and distribution system operators. Lastly, it also gives clear dates for the market openings for different customer levels. According to the Directive, from 1 July 2004, at the latest, all non-

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<sup>20</sup> Hürrem Cansevdi (Ed.), **AB’nin Enerji ve Ulaştırma Politikaları ve Türkiye’nin uyumu**, İktisadi Kalkınma Vakfı, İstanbul, 2004, p.21

<sup>21</sup> **Türkiye’nin Enerji Sorunları ve Çözüm Önerileri**, TÜGİAD, Ankara: Ajans-Türk Basın ve Basım A.Ş., 2003, p. 101

\* Directive 2003/55/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in the natural gas and repealing Directive 98/30/EC

household customers and from 1 July 2007, all customers will have the free access to natural gas on the basis of free market rules set out by the Directive<sup>22</sup>.

When we look at the report on market openings, we see again three groups of member countries as it is in the case of electricity sector.

According to the data<sup>23</sup>:

6 member states have opened their markets as 100%; Austria, Denmark, Spain, Germany, Italy, UK, 11 countries as 30-100 %, Belgium, France, Ireland, Luxembourg, the Netherlands, Sweden, Estonia, Poland, Lithuania, Slovakia, and Slovenia, and finally 3 member countries have done nothing about liberalisation, the Czech Republic, Hungary and Latvia.

In order to provide the market opening, the Commission strictly check the implementations of the member states very often. Madrid Forum of 1999 was initiated to realize the very same objective where representatives of national regulatory bodies, member countries, European Commission, transmission system operators, gas suppliers, network users, consumers and gas exchange markets gather to elaborate the problems in the process of creating the internal gas market.

Concerning the prices in the market, there are also some price reductions in some countries such as France, Sweden and Spain, after the Directive. However, we still do not know if gas market is processing in favour of the customers, as it is too early to detect that there is a positive correlation between market opening and price reductions. Only after the internal market has been created, and market opening has been completed, then we will totally be able to evaluate the process and the results.

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<sup>22</sup> Directive 2003/55/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in the natural gas and repealing Directive 98/30/EC, <http://www.europa.eu.int/scadplus/leg/en/lvb/l27006.htm>, (December 20, 2004)

<sup>23</sup> Cansevdi, p.21

### 1.2.1.2 Oil and Coal

*Oil* is the primary energy source of European Union, as 40 % of its energy is dependent on oil and oil products. As most of the oil is imported, EU's primary goal concerning oil is to limit its consumption for security, environment and economy related reasons.

Free movement of oil products within the union had been ensured before taking initiatives to create a common energy policy. In this context, it is stated in the "EC White Paper on Energy Policy" that oil industry is generally working according to free market principles<sup>24</sup>. So, there was no need for a new Directive for oil sector where deregulation needs can be met by existing rules and regulations. However, there is still a need for the sector, which is to search and develop oil reserves and to open reserves to free competition including third country companies.

*Coal* is the other energy source where there is already an internal market even since the beginning of the European Community. European Coal and Steel Community of 1952 established this first European internal energy sector. So since ECSC, there has been no limitation before the free movement of coal within European Union.

ECSC had been elapsed in 2002, so all institutions created by ECSC became EU institutions and all rights and obligations derived from the international agreements signed by ECSC were transferred to EU. Therefore, the European Council had adopted a new Regulation on State Aid concerning the Coal Sector. This new Regulation includes all subsidies given by the ECSC to coal sector<sup>25</sup>. However, titles mainly aim at diminishing state aid to coal sector as the general tendency in the EU. In this effort, they, on the other hand, exclude state subsidies to Research and Development, environment and education related activities.

Concerning coal, EU is trying to stimulate the domestic production rather than import. Indeed, EU is still rich for coal resources when considering the reserves in UK, Germany, and Spain and to some extent France as existing members. When we take into consider new members, we see that Poland and the Czech Republic produce more coal than the sum of the existing coal producing member states. However, as the price of imported coal is far cheaper than the

<sup>24</sup> European Commission White Paper on Energy Policy <COM 88 174> 1988

<sup>25</sup> Cansevdi, p.21

domestic one, production levels are declining. Therefore, EU has the objective to stimulate the use and production of coal as a source of energy mainly for the aim of securing the supply of energy and reducing the dependency on imported energy resources. In these efforts, there is research for establishing cost effective clean technologies to make use of coal environmentally friendly.

### 1.2.2 Security of Energy Supply

European Union needs energy for sustaining its economy and modern daily life. However, resources exist in European soil and seas are inadequate to meet this enormous need. Europe consumes far more energy than it produces. This makes European Union highly dependent on imported energy. As it is stated in the Green Paper “the EU imports 50% of its energy requirements and if no measures are taken within the next 20 to 30 years this figure will rise to 70%”<sup>26</sup>.

European Union has to secure its energy supply in the short-term. However, in the long-term, there will be another challenging situation. It is that the world oil reserves would be totally depleted. According to the pessimistic scenario, the peak production in oil reserves would be reached in 2021, and the reserves would be totally depleted in 2075. On the other hand, according to the optimistic scenario, peak in production would be reached in 2112<sup>27</sup>.

Oil and oil products dominate EU energy balance with 41%, most of which is imported. This situation gives rise to a number of problems for EU in short-term. The first one is the price of oil and gas with their impact on European economy. Lives of millions of companies are dependent on the prices on which EU does not have direct influence. Secondly, there is always a risk for energy cut from the imported nations. Consequently, EU is at risk for its economy at any time.

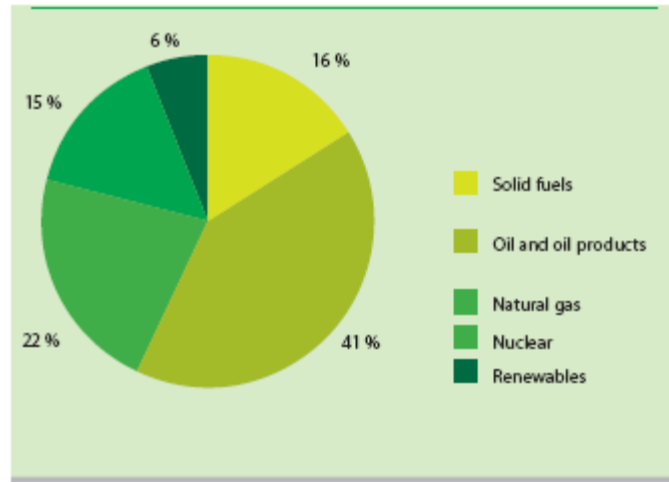
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<sup>26</sup> Green Paper: “Towards a European Strategy for the Security of Energy Supply” COM (2000) 769, <http://www.europa.eu.int/scadplus/leg/en/lvb/l27037.htm>, (December 20, 2004)

<sup>27</sup> Dr. Ertuğrul Kızılkaya, Dr. Cem Engin, “Enerjinin Jeopolitiği: Dünya Üzerindeki Jeo-Ekonomik Mücadele”, **Sosyal Bilimler Dergisi**, İstanbul Üniversitesi, p. 200, <http://www.manas.kg/pdf/sbdpdf9/Kizilkaya.pdf>, (09 September, 2005)

According to Green Paper<sup>28</sup>:

The current energy demand is covered by 41 % oil, 22 % gas, 16 % coal (hard coal, lignite and peat), 15 % nuclear energy and 6 % renewables. If nothing is done, the total energy picture in 2030 will continue to be dominated by fossil fuels: 38 % oil, 29 % gas, 19 % solid fuels, 8 % renewables and barely 6 % nuclear energy.



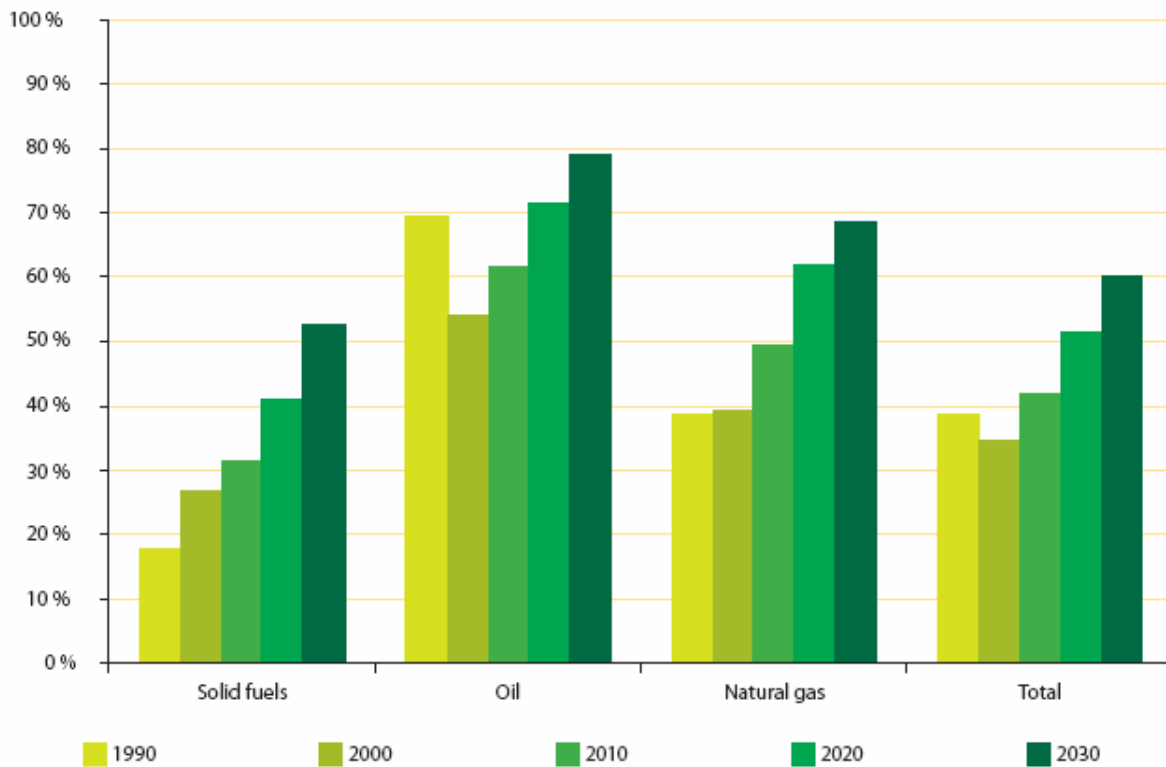
**Figure 1. EU-15 Primary Energy Balance 1998**

**Source:** Energy “Let Us Overcome Our Dependence”, European Communities, p.4, 2002, Belgium, [www.europa.eu.int](http://www.europa.eu.int) (August 23, 2005)

What makes EU dependent on external energy supplies is the huge amount of imported fossil fuels. In EU’s energy balance, 78% of oil and 36% of natural gas is imported. And with the enlargement it is foreseen that in 2020 this will rise to 90% in oil and 70% in natural gas<sup>29</sup>. As it is also shown in the following figure, EU is becoming more and more dependent on fossil fuels, namely solid fuels, oil and natural gas. 2030 predictions are the highest ones, reaching 60 per cent in total dependency on fossil fuels. These figures are crucial, as EU does not have vast indigenous fossil fuel resources. Even worse, limited indigenous reserves will not last forever as it is foreseen that North Sea oil will be used up in 2050 at latest, which is already expensive to extract.

<sup>28</sup> Green Paper..., <http://www.europa.eu.int/scadplus/leg/en/lvb/l27037.htm>, p.3 (December 20, 2004)

<sup>29</sup> Green Paper..., <http://www.europa.eu.int/scadplus/leg/en/lvb/l27037.htm>



**Figure 2. EU-30- Dependence According to Energy Product**

**Source:** Green Paper: “Towards a European strategy for the security of energy supply” <http://www.europa.eu.int/scadplus/leg/en/lvb/l27037.htm>, p.23

This situation may remain same in the future if nothing is done in energy policy. The only important change would be in favour of natural gas concerning energy balance. Proportion of gas in energy balance rises year by year. This reality is itself another problem for EU, as this energy resource is another foreign one.

There is another problematic area that makes the oil and natural gas supply even more insecure. It is that high amount of oil and gas is imported from one single supplier. In natural gas, EU is highly dependent on Russia (40%) and in oil dependent on Middle East (45%)<sup>30</sup>. Therefore, instability of these regions, especially Middle East, is a high risk before the security of energy supply.

In order to tackle the problem of security of supply, European Union has been taking some initiatives through some actions and treaties. However, it is uncertain if these initiatives will bring a thorough solution to the problem.

<sup>30</sup> Green Paper..... <http://www.europa.eu.int/scadplus/leg/en/lvb/l27037.htm>, p.2

What EU has done and planned in order to secure its energy supply can be summarized in four points. These are; the necessity of holding minimum stocks of crude oil and/or petroleum products, diversification of energy resources, rational use of energy, and use of foreign policy tools in securing energy supply.

Concerning the minimum stocks of crude oil, in 1968, for the very first time, all member states are required to maintain 65 days stocks of oil by a Council Directive. Directive states that “the member states are required to maintain at all times, within the territory of EU, stocks of petroleum products at a level corresponding to at least 65 days’ average daily internal consumption in the preceding calendar year”<sup>31</sup>. A new Directive amended this Directive in 1972 through which the amount of minimum stock of oil was increased to 90 days’ average daily internal consumption.

The fear under this Directive was the instabilities in the main oil supplier of EU, which is the Middle East. The oil crises of 1973, 79 and the gulf war of 1991, all originated in the Middle East, made this initiative a necessity. After the Gulf War, even further steps on the topic have been taken. In 1998, a new Directive amended the previous one. This Directive enabled each member state to maintain the required stock of oil in territory of any member country. Moreover, for the healthy measurement and control of the stock, each member state is obliged to establish a *stockholding agency* that will make the system more effective<sup>32</sup>.

As a second solution to the security problem, European Union has to diversify its energy resources. This will decrease the dependency level of EU on imported energy. In this context, it is referred to the use of indigenous energy resources such as renewable energy, coal and nuclear power that can be produced within the EU.

From among them, renewable energy or alternative energy consists of pure natural energy resources that cause very little pollution. There are several sorts of renewable energy, namely

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<sup>31</sup> Council Directive **68/414/EEC** of 20 December 1968 imposing an obligation on MS of the EEC to maintain minimum stocks of crude oil and/or petroleum products,

<http://www.europa.eu.int/scadplus/leg/en/lvb/l27045.htm>, (December, 20, 2004)

<sup>32</sup> Council Directive 98/93/EC of 14 December 1998 amending Directive 68/414/EEC imposing an obligation on MS of the EEC to maintain minimum stocks of crude oil and/or petroleum products, <http://europa.eu.int/eur-lex/lex/LexUriServ/LexUriServ.do?uri=CELEX:31998L0093:EN:HTML>, (December, 20, 2004)



hydroelectric power, solar energy, and wind power as well as biomass energy. Their positive aspect is the fact that these can be found in the nature with abundant resources. However, there is a negative aspect that the first plantation cost is too high to make them attractive investments. Other facts and development concerning these alternative resources will be considered in a detailed way in the Environment chapter.

Second option for the diversification could be the old energy of Europe, namely coal that constitutes 27% of EU's electricity generation. EU holds significant coal reserves, especially after the enlargement. However, its proportion in energy balance diminishes day by day. It is now in an unfavourable position due to the reasons that it is more polluting, having a lower calorific value, less practical to transport and more bulky to stock when compared with hydrocarbons<sup>33</sup>. On the other hand, coal has an important advantage, which is its price. The price of coal is relatively lower and stable. However, this advantage becomes a disadvantage when relatively cheaper coal is imported. This is another serious threat against increase in production of indigenous resources. Despite these disadvantages, this indigenous resource can help EU to secure its energy supply if its environmental impact is reduced and its energy efficiency is increased.

Third option is nuclear energy. "It produces only a negligible quantity of CO<sub>2</sub>, and thus helps in the fight against climate change"<sup>34</sup>. However, it is at the same time the most discussed energy type. Although it makes a positive contribution to the Union's energy supply security, European public is mainly against nuclear energy. Nuclear power reactors are seen as dangerous potential bombs in the eyes of public mainly due to the Chernobyl Disaster of 1986. Besides this, there is another problem, may be even more serious, the problem of waste management. There is not yet found any established ways to wipe nuclear waste out safely, rather than burying it. Furthermore, EU is also highly dependent on the essence of nuclear energy that is uranium. It holds only 2% of the world's natural uranium reserves.

In the light of these factors, the future of nuclear sector is uncertain in the Union. There is no member state that has plans to build new nuclear power stations, except Finland. Instead, some member states are gradually shutting down their power stations. The only way to make it a

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<sup>33</sup> Energy "Let Us Overcome Our Dependence", European Commission, Luxembourg: Office for Official Publications of the European Communities, 2002, p.4

<sup>34</sup> Energy "Let Us ... p.21

promising sector is to go on research and develop know-how so that waste problem can be solved, and clean and safe reactors can be developed.

European Union is also promoting rational use of energy and energy saving through some actions in order to secure its energy supply. We have another word that tells the true story; namely energy efficiency, which is described as reducing energy consumption without reducing the use of energy-consuming plant and equipment<sup>35</sup>. In that sense, inefficiency in energy refers to the loss of energy due to lack of commensurate technology in transport of energy and on the use of energy. In this context, EU developed an action plan through some programmes like in order to make energy use efficient. We are going to elaborate these programmes and energy efficiency when talking about environmental pillar of energy policy.

The last point is about the usage of foreign policy tools in securing energy supply. Programmes that include aids to specific regions on specific subjects and international agreements are major foreign policy tools of European Union used for securing its energy supply. European Union has to develop its relations with third countries who hold significance owing to their energy resources or geo-strategical positions on the transport lines of vast energy resources to Europe. In order to secure its energy supply, EU also gives technological assistance to third countries. These tools are considered to help to improve the international cooperation concerning energy.

Two regions hold this status for EU, namely the Middle East and Russian Federation including Former Soviet Republics. These two regions are major energy suppliers of the union. From among them, first initiative was towards the Middle East, which is Euro-Arab Dialogue initiated after 1973 oil crises. However, Arab-Israel conflict prevents the development of this dialogue. Barcelona Process is the second initiative towards the region under the name of Euro-Med Partnership in 1995. Concerning the same process, in 1997, representatives of 27 countries who are the parties to this process established Euro-Med Energy Forum. And one year later, Euro-Med Energy Plan was created to adapt the Mediterranean partners and EU's energy producing companies to forecasted energy demand increase<sup>36</sup>.

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<sup>35</sup> Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions. Action Plan to improve Energy Efficiency in the European Community, COM (2000) 247, <http://www.europa.eu.int/scadplus/leg/en/lvb/l27033.htm>, (December 20, 2004).

<sup>36</sup> AB'nin Enerji Politikası ve Türkiye, p. 47

Other foreign policy tools on energy were directed towards the Former Soviet Republic territory. As vast oil and natural gas reserves were discovered, especially around Caspian Sea Basin, EU takes initiatives to develop its cooperation with the region. First initiative was the adoption of “European Energy Charter” in 1991, which proposes technical assistance and transfer of investment capital to the region in order to reach the goals of security of supply, generation, transmission and transportation of energy and energy efficiency as well as environmental protection in the region<sup>37</sup>. Three years later, EU signed an obligatory treaty under the framework of European Energy Charter that is “Energy Charter Treaty”. This initiative was crucial, as especially transportation of oil and natural gas from this region to EU market needs new investment and technology concerning energy infrastructures. Nevertheless, even after the Treaty came into force in 1998, there are still problems in its implementation, one of which is the lack of approval of Russian Federation, despite its signature on the Treaty<sup>38</sup>.

There is even a specific programme under Technical Assistance for Commonwealth of Independent States (TACIS), namely Interstate Oil and Gas Transport to Europe (INOGATE). This programme is directed towards to countries of Eastern Europe and Central Asia. “Aim of this programme is to renew the transportation infrastructure related to oil and natural gas, and give technical assistance in order to realize new projects in the region”<sup>39</sup>. This programme can be included as part of a bigger EU initiative, which is “Trans-European Energy Networks”. Through several projects under this programme, EU aims to provide links from major energy rich regions to EU and links among the EU countries themselves. Thus, EU will be securing its security of energy supply.

In conclusion, security of energy supply is a priority for EU, if she needs to be more independent in energy where dependency may create serious problems in possible energy crises due to instabilities of the stated regions. EU has to provide the security of vital resources for securing its economy and daily lives of its citizens as well. The planned actions for the mission can also be appreciated for the sake of their effects on developing international cooperation, custom of rational use of resources and protecting the environment.

<sup>37</sup> AB Enerji Politikası: pazarın açılması, ekonominin desteklenmesi, pp. 6,7

<sup>38</sup> AB'nin Enerji Politikası ve Türkiye, p.47

<sup>39</sup> AB'nin Enerji Politikası ve Türkiye, p. 47

### 1.2.3 Environmental Concerns

The last pillar of the EU energy policy is based on the environmental issues, mainly the results of energy production and use. It is a recent acknowledgment that energy is a major factor for a number of environmental problems. For this reason, environmental policy integration concerning the energy sector becomes a crucial area to examine.

Environmental policy has always been superior to the energy policy in EU law. It is among the key policy areas of the European Union. Although Rome Treaty that gave birth to the European Economic Community did not include any separate environment chapter, it is first introduced in founding treaties through Single European Act in 1987. Act gave the community competence in the area of environment. Besides, it clarifies the targets and principles of environmental protection in the community as they are originally laid down in Environmental Action Programmes (EAP) from which the first one was initiated in 1974.

For deeper integration, Treaty on the European Union included the environment as a key policy area in 1992. In this context, it launched the process for environment to become one of the EU common policy areas. Treaty specifically includes three articles about the role of environment in other policy areas. “Article 2 defines sustainable development as a fundamental objective for the Community. Besides this, Article 6 requires that environmental aspects must be integrated into the definition and implementation of the community policies”<sup>40</sup>. And finally Article 3 lists the tools to achieve sustainable development in the Community where the environmental policy is specifically referred.

Energy policy of the European Union is still linked to the environmental policy legally as there is no specific article in the Treaty on EU with regard to energy. This is not because environment is a more important area than the energy, but this is because energy could not be taken to EU level from nation-state level mainly due to its strategical importance in national security.

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<sup>40</sup> Commission Staff Working Paper: Integrating Environment and Sustainable Development into Energy and Transport Policies: Review Report 2001 and Implementation of the Strategies, pp. 7, [http://europa.eu.int/comm/energy\\_transport/library/integr\\_report\\_en.pdf](http://europa.eu.int/comm/energy_transport/library/integr_report_en.pdf). (May 05, 2005)

There are several initiatives, legal documents, papers and communications especially with regard to actions that are both related to energy and environment. In all these documents, there is a common principle; “sustainable development”. This principle mainly supports the future development by paying attention to the environmental and social factors. Energy policy is aimed at considering this principle in all three pillars, not only in its environmental concerns. However, as it is mainly based on the environmental issues, we are going to integrate the principle into this third pillar.

The principle of “Sustainable development” was firstly integrated into the 5<sup>th</sup> EAP (1993-2000), which carries the headline of “Towards Sustainability”. This programme aims at integrating environment into other policy areas, stimulating use of natural resources in line with providing sustainable development, minimum use of fossil fuels and rather developing renewable energy resources instead of them. The European Commission prepared the “6<sup>th</sup> Environmental Action Programme” in 2001 encompassing the period 2001-2010 holding the headline “Environment 2010: Our Future, Our Choice”<sup>41</sup>. Within this new programme, EU determined new thematic areas; climate change, natural biological diversity, environment and health, natural resources and waste.

In the light of these last two EAPs’ headings, we are going to examine this part in three aspects, namely, climate change policy, renewable energy and energy efficiency as the prospectus for the solution to the problems related to both energy and environment. Sustainable development and a sustainable energy policy will be our main denominators in analysing all these subjects.

### **1.2.3.1 Climate Change Policy**

Climate change or global warming has become the major environmental problem in the 1990s. This scientific phenomenon is a by-product of industrial development. According to the definition, “Greenhouse gases are accumulating in Earth’s atmosphere as a result of human

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<sup>41</sup> Decision No 1600/2002/EC of the European Parliament and of the Council of 22 July 2002 laying down the Sixth Community Environment Action Programme, OJ L 242 of 10/9/2002, <http://europa.eu.int/comm/environment/newprg/>, (May 10, 2005)

activities, causing surface air temperatures and subsurface ocean temperatures to rise”<sup>42</sup>. These human activities are clear to all, namely industrial processes, fossil fuel combustion, transportation and changes in land-use such as deforestation.

Increase in the levels of greenhouse gases is the main reason to this phenomenon. Normally, the world atmosphere keeps these gases to certain amounts. These gases keep sun’s heat and thus excessive levels of these gases result in global warming. There are six types of greenhouse gases, namely carbon dioxide (CO<sub>2</sub>), methane, nitrous oxide, hydro fluorocarbons (HFCs), per fluorocarbons (PFCs) and sulphur hex fluoride (SF<sub>6</sub>). From among them, the most hazardous one is Carbon dioxide released by human activities. It is the main contributor to climate change because of the quantities released to the atmosphere, mainly due to the burning of fossil fuels in transport and energy related activities.

The indicators of the global warming are open to all, scientifically. “Temperatures at the Earth’s surface increased by an estimated 1°F (0.6°C) over the 20th century. The 1990's were the hottest decade of the entire century; perhaps even the millennium, and 1998, 2001, and 2002 were three of the hottest years ever recorded”<sup>43</sup>. This temperature rise or warming may not seem to be the problem itself. Instead, the problems are the detrimental effects on mankind due to warming. Sea-level rise is the first result of warming due to defrost of the ice in poles. It will make a pressure on the coastal communities in the world to move on. Droughts due to falls in rain levels and extreme hot weather will be another problem especially for the communities of Africa and the Middle East. Moreover, such climate change could have some other unpredictable environmental, social and economic consequences for the mankind.

The world tries to take initiatives to hamper the realisation of this phenomenon in more detrimental size. United Nations Rio Summit was held in 1992 in order to reduce global warming and cope with its detrimental effects. Outcome of the Conference is the “United Nations Framework Convention on Climate Change” (UNFCCC). Convention came into force in 1994 and until now, 189 countries have become party to it. It gives a framework for intergovernmental efforts to tackle the problems posed by the climate change. The Convention

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<sup>42</sup> Climate Change Science, U.S. National Academy of Sciences, 2001, [http://www.pewclimate.org/global-warming-basics/basic\\_science/](http://www.pewclimate.org/global-warming-basics/basic_science/), (May 23, 2005).

<sup>43</sup> Climate Change..., [http://www.pewclimate.org/global-warming-basics/basic\\_science/](http://www.pewclimate.org/global-warming-basics/basic_science/)

says, “It recognizes that the climate system is a shared resource whose stability can be affected by industrial and other emissions of carbon dioxide and other greenhouse gases”<sup>44</sup>.

Nevertheless, the Convention was not a powerful tool alone to reduce global warming. So, in 1997, governments agreed on an additional treaty, called “Kyoto Protocol” which has legally binding measures to limit or reduce greenhouse emissions of the parties involved. In the protocol, there listed different targets for different group of countries. Under Annex B to the Kyoto Protocol, the biggest percentage is set for the US and EU 15 plus Central and Eastern European Countries (CEEC) as new members, by 7% and 8% decrease respectively. However, the US has indicated its intention not to ratify the Kyoto Protocol. On the contrary, the EU signed the Protocol as a block and EU and Member States have also completed the ratification process in May 2002. According to the protocol, EU is required to reduce its greenhouse gas emissions by 8 per cent compared to 1990 levels by the years 2008 to 2012.

**Table 1**

**Countries Included in Annex B to the Kyoto Protocol and Their Emission Targets**

Country	Target (1990* - 2008/2012)
EU-15** , Bulgaria, Czech Republic, Estonia, Latvia, Liechtenstein, Lithuania, Monaco, Romania, Slovakia, Slovenia, Switzerland	-8%
US***	-7%
Canada, Hungary, Japan, Poland	-6%
Croatia	-5%
New Zealand, Russian Federation, Ukraine	0
Norway	+1%
Australia	+8%
Iceland	+10%

**Source:** [http://unfccc.int/essential\\_background/kyoto\\_protocol/items/3145.php](http://unfccc.int/essential_background/kyoto_protocol/items/3145.php)

<sup>44</sup> The United Nations Framework Convention on Climate Change, [http://unfccc.int/essential\\_background/convention/items/2627.php](http://unfccc.int/essential_background/convention/items/2627.php), (May 23, 2005)

\* Some EITs have a baseline other than 1990.

\*\* The EU’s 15 member States will redistribute their targets among themselves, taking advantage of a scheme under the Protocol known as a “bubble”. The EU has already reached agreement on how its targets will be redistributed.

\*\*\* The US has indicated its intention not to ratify the Kyoto Protocol.

As Ute Collier states<sup>45</sup>:

This target was then subsequently divided up between Member States. Luxembourg (28 per cent), Denmark (21 per cent) and Germany (21 per cent) have the largest reduction commitments, while some other Member States are allowed substantial emission increases (Greece: 25 per cent, Portugal: 27 per cent).

These different levels are going to be implemented according to the “Burden Sharing Agreement of the EU” by decision of EU Environment Council in 1998. In order to reconcile the differences among the Member States in development terms, EU established this mechanism. This provides poorer members or “laggards” (Greece, Portugal and Spain) to increase their emissions, whilst the “leaders” are expected to accommodate this emissions growth by reducing their emissions.

**Table 2**

**Liabilities of EU MS According to Kyoto Article 4 and Burden Sharing Agreement**

<b>Member State</b>	<b>Liability</b>
Austria	-13
Belgium	-7.5
Denmark	-21
Finland	0
France	0
Germany	-21
Greece	+25
Ireland	+13
Italy	-6.5
Luxembourg	-28
The Netherlands	-6
Portugal	+27
Spain	+15
Sweden	+4
UK	-12.5
<b>Total</b>	<b>-8</b>

**Source:** [http://www.europa.eu.int/comm/environment/docum/0708\\_report\\_en.pdf](http://www.europa.eu.int/comm/environment/docum/0708_report_en.pdf)

Kyoto Protocol has specified the energy and transport sectors as the most important sectors in diminishing the Carbon dioxide emissions. These sectors create 90 per cent of the CO<sub>2</sub> emissions. For this reason, EU has to consider revising its energy and transport policies in

<sup>45</sup> Ute Collier, “EU Energy Policy in a Changing Climate” in **Environmental Policy Integration-Greening Sectoral Policies in Europe**, edited by Andrea Lenschow, London, 2002, pp.180, 181



order to meet its Kyoto targets in time. In this context, EU started a post-Kyoto process that is done by “European Climate Change Programme” (ECCP). ECCP was initiated in June 2000, as a follow up of Commission “Preparing for implementation of the Kyoto Protocol” in 1999. The Programme tries to drive forward EU efforts to meet the targets set by the Kyoto Protocol through most environmentally and cost-effective measures. ECCP set up “multi-stakeholder consultative process” through which relevant players such as the Commission, national experts, industry and the NGO community have worked together. Programme works through 11 different working groups, from which three of them directly relate to the energy sector, namely energy supply, energy demand and energy efficiency in end-use equipment and industrial processes and two others; transport and agriculture sectors are indirectly related to the use of energy.

We have the second ECCP Report that clarifies the potential of cost-effective and environmental greenhouse gas emissions cut and the last situation in achieving the targets in each sector. EU had stabilised its CO<sub>2</sub> emissions in 2000 as it is stated in UNFCCC. According to the Programme report “Overall greenhouse gas emissions in 2000 decreased by 3.5% compared to 1990, while in 1999 they had been 3.8% below 1990 levels, according to the most recent estimates”<sup>46</sup>.

In energy sector, the Programme is also screening the potential gas reductions and monitoring the implementation. ECCP had studied separately on energy supply and energy demand. In energy supply side, there is a potential of 150 Mt CO<sub>2</sub> through liberalisation in electricity and gas markets and several directives and initiatives especially related to the renewable energy. In demand side, 430 Mt CO<sub>2</sub> potential reductions have been monitored especially through the measures taken to improve energy efficiency<sup>47</sup>.

There are two other sections in the report as the “new challenges” and “policies and measures”, analysing recent developments and the initiatives taken in climate related policy areas. In these sections, renewable energy is specifically stressed with the help of European Union Johannesburg Renewable Energy Coalition. This Coalition is based upon the world 2002 Johannesburg Summit that stated the need for increase the global share of renewable energy.

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<sup>46</sup> Second ECCP Progress Report: Can We Meet Our Kyoto Targets, 2003, p.14, [http://www.climnet.org/pubs/second\\_eccp\\_report.pdf](http://www.climnet.org/pubs/second_eccp_report.pdf), (May 24, 2005)

<sup>47</sup> Second ECCP..., [http://www.climnet.org/pubs/second\\_eccp\\_report.pdf](http://www.climnet.org/pubs/second_eccp_report.pdf), p.14

Moreover, ECCP also analysed the EU Programmes like Programme for the Promotion of Renewable Energy Sources (ALTENER). On the other hand, the Programme stressed another measure, namely energy efficiency. In this context, it examined several directives like “Directive on the energy performance on buildings” with regard to energy efficiency under the very same headings.

According to the European Union, it could easily achieve the 8 % target set by Kyoto Protocol, even could go on with further reductions for the determined time period. Actually, EU is taking initiatives and measures to meet the target through several Directives and Papers. These Directives and Papers also pave the way for a common EU energy policy. The tools of the EU are even constant such as renewable energy resources and the energy efficiency measures in meeting the targets.

### **1.2.3.2 Renewable or Alternative Energy**

Renewable energy, nowadays also used as alternative energy, is the new phenomenon on the way for sustainable development and for an environmentally integrated energy policy. It is also the most probable way for the European countries to meet their Kyoto targets when producing energy. Despite the fact that they seem to be the solution to environmental problems caused by energy, there are difficulties and thus doubts about their share in the energy balance. European Union seems to be on the side of renewable energy, by taking new initiatives and revealing new directives about their usage. Nevertheless, we do not still see how realistic EU on its targets concerning this new energy type. In this chapter, we are going to examine this through several EU initiatives, directives and the success stories of some member states.

Before examining the policy of EU on renewables, it is worthy to mention about the established forms of renewable energy. We can list six different forms as renewable energy. From among them three of them are well-known, namely hydro, wind and solar power. Hydropower has been used for some time. Especially the most large-scale sources within Europe are fully exploited, but there is still potential for small-scale sources as small hydroelectric power plants.

Wind energy becomes one of the most popular renewable energy types in last two decades. It is exploited by using wind tribunes to generate electricity. Technological improvements in this

area move forward its production. Moreover, its relatively low cost as US\$ 0.04/kWh, almost same with that of coal and natural gas per kWh, makes it attractive. EU is the world leader in wind energy with its 35.000 MW energy produced by wind tribunes equivalent to 35 big power plants burning coal<sup>48</sup>. There is still big potential in wind power in EU, especially in the UK. However, there are difficulties associated with it, as its fluctuations are difficult to manage and many sources are well away from centres where the power can be used. Besides these, the local communities in some regions do not support the idea of having giant sized wind tribunes.

Solar energy is another improving one. It is derived from the sun's light and heat by using solar collectors or photovoltaic cells. Nevertheless, there is the same problem for solar energy, the problem of fluctuations in conditions for producing energy. Secondly, it is the most expensive type of renewable energy as it costs at US\$ 0.25-0.50/kWh.<sup>49</sup>

The most advantageous aspect of both wind and solar energy is their nature of producing energy, called distributable energy. It means that, they can produce power with small quantities geographically close to the end user. Therefore, more communities producing their own wind or solar energy will result in smaller and cheaper central power stations and transmission networks. However, there is still an unresolved problem of their nature, their dependence on fluctuations in weather. In order to overcome this deficiency, the power produced has to be stored efficiently. Although there are some proven technologies for this such as transforming them into fuels in the form of hydrogen or ethyl alcohol, their costs are still too high to realize them.

Production of electricity from three other types of renewable energy is still improving, but it also entails great potential. Biomass energy is produced by cultivating energy crops or as a by-product of agriculture or forestry activities to produce fuels. "Geothermal energy is generated by tapping the heat below the earth's surface through boreholes driven into a hot aquifer, or by injecting cold water through hot dry rock"<sup>50</sup>. Organic waste is the last form of renewable energy produced from the waste of organic products especially by the municipalities.

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<sup>48</sup> Michael Parfit, "Alternative Energy", **National Geographic**, August 2005, p.89

<sup>49</sup> Timothy E. Lipman and Daniel M. Kammen, "Renewable energy" in **The Future of Oil As A Source of Energy**, The Emirates Center for Strategic Studies and Research, Abu Dhabi, 2003, p.74

<sup>50</sup> Barnes and Barnes, p.241

Concerning the field, European Union first issued a Green Paper called “Energy for the Future: Renewable Sources of Energy” in 1996\*. This Green Paper is mainly giving a general framework, rather than making detailed proposals. It basically set one specific objective for the European Union; it is to double the gross inland energy consumption from renewables in 2010, from 6 per cent to 12 per cent. Green Paper mainly considers the advantages and opportunities by using renewables and the obstacles before their development. The opportunities and advantages given by the Green Paper 1996 are still using as the reasons of initiating renewable sources in the union.

As the first reason, the renewable sources are mainly in line with the sustainable development objectives of the union. In that sense, EU supports development by respecting environment. Especially after the Kyoto Protocol, EU has to find alternative energy sources that would give little damage to environment and specifically release little gas emissions. In that sense, fossil fuels are not good examples of environmentally friendly energy sources. Therefore, sustainable development can only be achieved by increasing the share of renewables in total energy consumption.

It is significant to note that European Union lacks vast fossil fuel resources, so it has to import half of its energy needs. In that sense, the renewable sources are indigenous, and therefore they can contribute to energy supply security by decreasing the dependency on imported energy. Security of energy supply is one of the main pillars of EU energy policy, and only increasing the share of renewables in energy balance can provide it.

Moreover, development of renewable energy sources can contribute to employment creation and regional development objectives of the union, as they are totally indigenous sources. Renewable energy can mostly be produced in rural areas, so it can give boost to rural development.

European Union can also benefit from selling its renewable energy technology especially to developing Asia. This could create new business opportunities for EU based industries that are world leaders as regards renewable energy technologies.

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\* 20.11.1996, COM (96) 576 final

Lastly, the general European public favours development of renewables mainly due to environmental reasons. European public is generally sensitive to environmental issues; thus mainly supportive for the renewables.

Besides these advantages and opportunities, there are also obstacles before their development. Green Paper firstly considers the high initial capital costs with long payback periods for revenue. Indeed, the cost curve for most renewables is dropping rapidly, as there is no additional cost rather than in the production stage. Despite this fact, initial capital is still high for many producers than those related to conventional fuels. This is economically logical, but there should be another economic logic in setting their cost, namely external cost. According to Green Paper, “This is particularly the case due to the fact that fuel and energy prices currently do not reflect the full cost, including the external cost implied for the society for the environmental damage caused by the use of conventional and fossil fuels”<sup>51</sup>.

Secondly, decision makers of energy sector, investors, governments and users enjoy low level of information about renewable energy technologies on their technical and economic potential. There is still resistance for change from conventional fuels to alternative energy.

The problems related to the storage and transmission through connecting to centralised electricity grids is also serious obstacle on which new solutions should be developed. Moreover, there are also difficulties due to seasonal variations in certain energy sources like wind and solar.

Within the initiatives to solve the fore mentioned problems, the European Commission issued the White Paper called “Energy for the Future: Renewable Sources of Energy”, following the Green Paper holding the same heading, in 1997\*. This white Paper made specific proposals on the issue of renewable energy for the EU to proceed. It one more time stressed the aim of doubling the energy supply through renewable energy sources in 2011, from 6% to 12%. In this supply, 23.5 per cent of the total electricity production is to be supplied by the renewables. In order to achieve this target, the Member States should contribute to this policy and try to improve the maximum use of renewable energy sources.

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<sup>51</sup> Green Paper for a Community Strategy; Energy for the Future Renewable Sources of Energy, Executive Summary, 1996, <http://europa.eu.int/en/record/green/gp9611/ensumen.htm>, (May 25, 2005)

\* White Paper, Energy for the Future: Renewable Sources of Energy, 26.11.1997, COM (97) 599 final

White Paper lists the benefits of Member States if they implement the measures taken to develop renewable energy. It will make Member States benefit from the great potential of them. It will help further cut CO<sub>2</sub> levels, and predicts 402 Mt reductions till 2010. It will help reduce energy dependency; 17.4 per cent decrease is achievable in energy import. And it will develop the national industry and create jobs. It is foreseen that energy production from renewables has the potential to create 500,000-900,000 new employments<sup>52</sup>. White Paper also initiates an action plan and lists the priority measures\*.

Following the Green and White Papers, Commission issued “The Communication from the Commission to the Council” in 2001. This Communication is an assessment document that includes position with regard to the regulations and implementation after the declaration of the White Paper. Document evaluates the performance of the development of renewable energy between 1997 and 2000 as poor. “In 1995 the proportion of RES in the EU's overall gross internal consumption was 5.4%. That figure increased to 5.9% in 1998 (interim figures)”<sup>53</sup>. It also gives details on the developments of specific renewable energy sectors. Among them, the wind energy is found the fast developing one, as 55 per cent increase in wind energy use has been observed per year<sup>54</sup>. In biomass energy, though progress has been made, this has not given true potential of biomass. In hydropower, the technology has been fully developed, but the building of small power stations is not at the desired level. Solar energy is also developing fast.

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<sup>52</sup> White Paper, Energy for the Future: Renewable Sources of Energy, <http://europa.eu.int/scadplus/leg/en/lvb/l27023.htm>, (May 27, 2005)

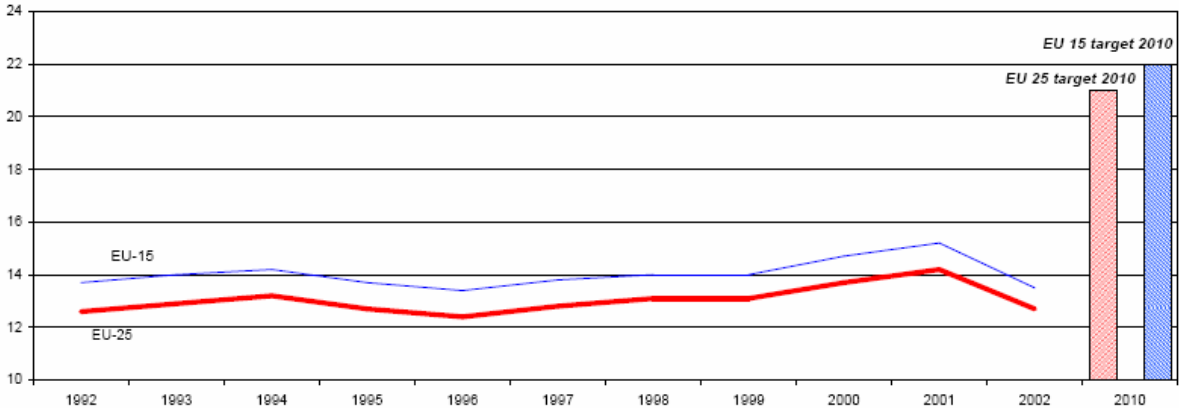
\* Main aim is to provide fair market opportunities for renewables. For the realization of this aim, member states should ensure the non-discriminatory access to the electricity market, should take the appropriate financial and fiscal measures, should take new initiatives regarding bio-energy for transport, heat and electricity, and should provide the promotion of the use of renewable energy sources (such as solar energy) in the construction industry, both in retrofitting and for new buildings. Moreover, White Paper brings new supportive measures with regard to ALTENER Programme such as informing consumers, developing European standards, improving the position of renewable energy sources on the capital market of the institutional and commercial banks creating networks (of regions, islands, universities, etc.) in the field of renewable energy sources. It also enables ALTENER Programme to monitor the implementation of the strategy and the action plan developed by the Paper.

<sup>53</sup> Communication from the Commission on the implementation of the Community strategy and action plan on renewable energy sources COM (2001) 69 final, <http://www.europa.eu.int/scadplus/leg/en/lvb/l27016b.htm>, (May 25, 2005)

<sup>54</sup> Communication from..., <http://www.europa.eu.int/scadplus/leg/en/lvb/l27016b.htm>

Beyond all fore mentioned Commission initiatives, the actual legislation of European Union on Member States starts with the Renewable Energy Directive in 2001<sup>55</sup>. This Directive aims at setting up a framework on the way for achieving a substantial increase in the use of renewable energy sources. Through this Directive, Member States must adopt and publish every five years a report setting the targets for their future Renewable Energy Sources (RES) consumption and showing what measures are to be taken to meet those targets. Directive also opens the way for the evaluation at Community and Member State level. At Community level, the Commission will publish a biannual report showing the progress made by each MS to meet their targets. And at MS level, they are required to submit a report in every two years that includes the indicators of success in meeting their targets. Moreover, this Directive sets a target for the Community, aims at producing 22.1 per cent of electricity from the renewable energy sources. This is still around 15 per cent.

The data in the following figure shows the very same target for the electricity production from renewable resources. While the production level is decreasing towards 2002, there is an ambitious target for the year 2010, which is 22 per cent for EU-15, and around 21 per cent for EU-25.



**Figure 3. Share of Electricity from Renewables to Gross Electricity Generation**

Source: Eurostat, <http://epp.eurostat.cec.eu.int/portal/>

<sup>55</sup> Directive 2001/77/EC of the European Parliament and of the Council on the promotion of electricity from renewable energy sources in the internal electricity market (Official Journal L 283 of 27.10.2001, <http://www.europa.eu.int/scadplus/leg/en/lvb/l27035.htm>, (May 25, 2005)



In addition to these papers and directives, the Council of Energy Ministers adopted ALTENER Programme; Programme for the Promotion of Renewable Energy Sources, in September 1993. This was mainly designed for the objective to reduce CO<sub>2</sub> emissions by 180 million tones by the year 2005. ALTENER was going to meet this target by increasing the proportion of energy production by renewable sources from 4 per cent to 8 per cent for the EU over the 1991-2005 periods. ALTENER I had a budget of European Currency Unit (ECU) 40 million. It set four different types of actions, to define technical standards, to create infrastructure for renewable energies, to help in coordinating national activities for information network, to study on the industrial use of biomass. Nevertheless, ALTENER I objectives and its budget were not in parallel. “One analyst estimated that achieving the electricity sector target alone would require the allocation of over 20 billion ECU of investment from 1995 to 2005”<sup>56</sup>. Therefore ALTENER I Programme was only helpful for the financing some pilot projects in the Community.

Following the ALTENER I, Energy Council adopted ALTENER II in 1998, for the period of 1998-1999. It also enjoyed a limited budget of ECU 22 million. Priority for ALTENER II was to reduce the initial investment cost of renewable energy to make them competitive with other types of energy. Lastly, European Council and Parliament adopted a new programme that replaced ALTENER Programme in 2000. This was the “Multiannual Programme for the Promotion of Renewable Energy Sources in the Community” covering the period from 1998 to 2002. And today, the scope and the objectives of the ALTENER are integrated into the framework of Intelligent Energy for Europe (2003-2006) Programme.

Despite those actions, proposals of the Commission, and the specific programmes supporting RES development, there are still important obstacles as regards to the development and wide use of them. This is mainly due to the unfavourable free market conditions for the renewables. As it is also stated in the Green Paper on RES, their relatively high initial investment costs prevent them from entering into the market easily<sup>57</sup>. These conditions limit the trend towards the renewable energy sources, despite their advantages as being environmentally friendly and indigenous energy.

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<sup>56</sup> Lenschow, p178

<sup>57</sup> Green Paper for..., <http://europa.eu.int/en/record/green/gp9611/ensumen.htm>



Despite the obstacles, EU initiatives and their effects on Member States create success stories regarding renewable energy in a short period of time. Germany and Denmark are two of them. Germany has realized a rapid increase in renewable energy capacity over the last decade. “At the end of March 2000, Germany had a wind capacity of 4635 megawatts, more than ten times that of the UK despite much more favourable conditions in Britain”<sup>58</sup>. Germany issued a law that made investment in renewable energy very attractive. Climate change policy and its ambitious domestic targets of Germany as 25 per cent reduction in CO<sub>2</sub> emissions in 2005 gave a boost to renewable energy.

Denmark is another success story particularly with regard to wind power. For over a decade, Denmark has become the world leader in wind turbine technology through the support of Danish government. Denmark set an ambitious target for the proportion of wind power in total electricity production as supplying 50 per cent of the electricity from the wind in 2030. Danish government supports it under the name of electricity production subsidy<sup>59</sup>. Denmark is currently meet 20 per cent of its electricity use from only one source that is wind energy<sup>60</sup>.

Among these success stories, there is a failure story despite its huge potential. It is the UK who has one of the best potentials for renewable energy in Europe owing to its island situation, particularly for wind and wave power. Nevertheless, UK governments neglected renewable energy, as UK is also rich in fossil fuels. However, there has seen a shift in direction, and there established a support system for RES. In order to develop the share of renewables in energy balance, state must subsidize the renewable energy sources as a priority area in order to give a boost to its proportion in general electricity consumption. This is the only way to proceed with the sustainable development, particularly for developed nations.

In order to promote renewables, there should be a support mechanism for their development. Within this mechanism, there must be developed different forms of subsidy or supports. According to Grant, Matthews and Newell, “Efforts to promote renewables are also undermined by the continued use of subsidies to fossil fuels”<sup>61</sup>. Thus, it is need for states to subsidize the RES for a period of time to let them develop their competition in the free market

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<sup>58</sup> Lenschow, p.187

<sup>59</sup> Lenschow, p.187

<sup>60</sup> Parfit, **National Geographic**, p.89

<sup>61</sup> Wyn Grant, Duncan Matthews, and Peter Newell, **The Effectiveness of European Union Environmental Policy**, London, 2000, p.131

system. They can be listed as green energy or renewable energy certificates, special funds, tax reductions or imposition of carbon taxes, constant prices, Research and Development support for them, preferential entrance rights to general electricity grid, development and management subsidies<sup>62</sup>.

Apart from the renewable energy, there is another alternative energy type, in fact, energy carrier that is hydrogen. It is not itself an energy source, instead, it is produced by other energy sources. It is easily and efficiently produced from water through electrolysis, and can then be stored as a compressed gas at a wide range of pressures. Hydrogen exists in the water together with oxygen. However, releasing it needs more energy than it produces.

Hydrogen can be produced through both conventional and renewable energy sources. If only if renewable sources are used in releasing it, then it could be a logical fuel for environment and for the future as an alternative fuel. In this context, it is crucial for bringing the possible solution to the storage of renewable energy. As it is stated “if electricity produced from renewable energy sources can be stored and then used on demand, it will be more competitive, and hydrogen storage enables this to be achieved while maintaining the “green image” of the product”<sup>63</sup>.

There are efforts to make hydrogen technology both environmentally friendly and economical in Europe and Turkey. Centre for International Hydrogen Energy Technologies established in Istanbul under United Nations Industrial Development. Organization conducts several pilot projects for the use of hydrogen energy since May 2004. In all these pilot projects, to produce hydrogen, renewable energy sources are used. One of the pilot projects will be conducted in Turkey, in Bozcaada, island in the North Aegean Sea. In Bozcaada, hydrogen will be produced through wind power. Moreover, there are some other efforts regarding use of hydrogen in vehicles, particularly in public transport in major cities in EU. EU supported this initiative through Clean Urban Transport for Europe (CUTE) Programme. The European Commission is allocating €18.5 million to the CUTE to support 9 European cities in introducing hydrogen into

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<sup>62</sup> Cansevdi, p.22

<sup>63</sup> **The Future of Oil As A Source of Energy**, p. 80

their public transport system: Amsterdam, Barcelona, Hamburg, London, Luxembourg, Madrid, Porto, Stockholm and Stuttgart<sup>64</sup>.

Nuclear energy is also taken as an alternative energy type. Nuclear energy can be an alternative to fossil fuels, as it does not release substantial greenhouse emissions. Moreover, it can provide help for securing energy supply of EU. Nevertheless, disadvantages of nuclear energy shadow these advantages. It is not yet enough safe and waste management problem could not be solved. Therefore, Member States do not prefer to continue establishment of nuclear power plants, particularly after Chernobyl accident (1986). From among them, France, the United Kingdom and Finland have not taken a decision to stop nuclear energy. However, they have no plans to establish new nuclear power plants except Finland.

European Union must take into consider the renewables, hydrogen technology, and even nuclear energy by bringing safety standards and with a solution to nuclear waste when forming its energy policy. Both Member States and the EU must establish a legal framework regulating the research and development for renewables, their production, subsidies and their use. As they are the most probable alternative to fossil fuels, they would also be the cornerstones in creating the common energy policy of EU.

### 1.2.3.3 Energy Efficiency

The last aspect of the environmental pillar in energy policy is the energy efficiency. It is the most addressed aspect in achieving Kyoto targets, in securing energy supply of the union and in providing savings for the EU economy, thus to achieve a sustainable energy policy. Energy efficiency means reducing energy consumption without reducing the use of energy consuming vehicles or plants. In other words, it tries to ensure better use of energy through less energy intensive methods, techniques or behaviours. According to Green Paper on energy efficiency “According to numerous studies the EU could save at least 20% of its present energy consumption in a cost-effective manner, equivalent to €60 billion per year, or the present combined energy consumption of Germany and Finland”<sup>65</sup>.

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<sup>64</sup> The Commission’s Programmes for Funding”,  
[http://europa.eu.int/comm/energy\\_transport/en/prog\\_cut\\_en.html](http://europa.eu.int/comm/energy_transport/en/prog_cut_en.html), (August 09, 2005)

<sup>65</sup> Green Paper on Energy Efficiency or Doing More with Less, COM (2005) 265 final, 2005, p.4,  
[www.europa.eu.int](http://www.europa.eu.int), (July 23, 2005)

European Union started to take initiatives about energy efficiency earlier than other energy related issues. However, EU could not succeed in achieving its established targets for energy efficiency. “In 1986, the Council set a target of improving European Union energy efficiency by 20 per cent in the period to 1995. By the end of 1995 it was clear that this objective would not be met”<sup>66</sup>. This was the first target and revised by another target due to its failure. In 1998, the Commission set a more reasonable target; it would be possible to save 18 per cent of the total energy consumption between 1995 and 2010.

EU has developed SAVE Programme to achieve these targets. SAVE I ran from 1992 to 1996. It has a budget of ECU 40 million for the period. Nevertheless, SAVE I Programme could not be successful in overall evaluation. It gives a big space for the Member States to develop their own programmes for energy efficiency, as well as its limited budget. As the Member States fail to do so, SAVE I was turned into a framework directive laying out general principles for action of the Member States on energy efficiency. However, there has been a considerable value with respect to the pilot projects funded by SAVE I.

SAVE II Programme started in 1996 and ran till 2000. It set out more reasonable targets for the energy efficiency aimed at improving energy intensity of final consumption by a further one percentage per annum, and encouraging investments in energy conservation\*. It is the imposition of less energy intensive methods and techniques in economy. SAVE II had a budget of ECU 45 million for the aim of promoting energy efficiency mostly through the voluntary agreements with equipment manufacturers on labelling and energy standards. Nevertheless, SAVE II enjoyed the same failure of SAVE I Programme; it has produced many studies but few tangible results. In 2002, SAVE Programme is included in the “Intelligent Energy for Europe 2003-2006 Programme” that will be studied under the EU Energy Programmes.

For the realization of energy efficiency in the Union, there has been issued an action plan and several directives. From among them, “Energy Efficiency Action Plan”, adopted in 2000, is the most comprehensive one\*\*. In this plan, European Commission set out the policies and

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<sup>66</sup> Barnes and Barnes, p.238

\* Council Decision No **647/2000/EC** of the European Parliament and of the Council of 28 February 2000 adopting a multiannual programme for the promotion of energy efficiency (SAVE) (1998 to 2002) [Official Journal L 79, 30.03.2001], <http://www.europa.eu.int/scadplus/leg/en/lvb/l27017.htm>, (December 10, 2004)

\*\* Communication from the Commission, Action Plan to Improve Energy Efficiency in the European Community, COM (2000) 247 final, Brussels, 2000, p.15, [http://europa.eu.int/eur-lex/en/com/cnc/2000/com2000\\_0247en01.pdf](http://europa.eu.int/eur-lex/en/com/cnc/2000/com2000_0247en01.pdf), (December 20, 2004)

measures for greater energy efficiency. Plan categorized actions in three points, measures to integrate energy efficiency into other EU policies, initiatives to strengthen and extend existing policies, and new policies and measures.

In integrating energy efficiency into other policy areas, Action Plan lists specific policy areas that implement energy efficiency measures. Plan mentions about the EU initiatives in its second part in a detailed way. Action Plan once more stresses the importance of complying with EU initiatives taken in transport sector, household appliances, industry, and buildings. It basically comes up with new policies and measures in the last part. According to the Plan, first of all, public procurement (public institutions, authorities and public enterprises) should promote the improvement of energy efficiency. Secondly, the Member States should stimulate the use of energy efficient technologies, particularly in public sector through tenders. Member States should also imply energy auditing through which they could acquire and identify energy saving opportunities. And lastly Member States should implement the Best Practice Programmes, under SAVE Programme. According to the Plan, the scheme will provide a framework for decision-makers and end-users for a comprehensive source of independent and accessible energy efficiency advice, guidance and training on new technology and techniques.

Moreover, to initiate a greater efficiency and following the failure of SAVE Programmes due to their nature of not being binding, the Council and Parliament adopt some other directives and regulations in the field. In 1996, Council and Parliament adopted the Directive on the energy efficiency conditions of the refrigerators<sup>\*</sup>. According to Directive, only the fridges that meet the allowed minimum standards for their energy consuming levels will be able to enter into the European market. In 2001, the Council and Parliament issued a regulation on community energy efficiency labelling for the office equipments called “energy star”. This labelling is not binding, but voluntary. Therefore, it will be valuable in free market in choosing the right equipment to use. In addition to this directive, The Commission proposed a new Directive for the buildings that consume 40 per cent of the total energy consumption in the EU according to Commission research. Council and Parliament adopted this Directive in December 2002<sup>\*\*</sup>. Directive takes measures to better use of energy for the buildings.

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\* 96/57/EEC Directive

\*\* 2002/91/EC Directive

Recently, European Commission announced the Green Paper on energy efficiency in July 2005. This Paper brings out some policy measures to achieve greater energy efficiency. It proposes the establishment of Annual Energy Efficiency Action Plans at national level. Such plans might identify measures to be taken at national, regional and local level and subsequently monitor their success both in terms of improving energy efficiency and their cost-effectiveness. Moreover, the Green Paper aims at giving citizens better information, for example through better targeted publicity campaigns and improved product labelling; improving taxation, to ensure that the polluter really pays, without however increasing overall tax levels; using public procurement to “kick-start” new energy efficient technologies, such as more energy efficient cars and IT equipment and using new or improved financing instruments, both at Community and national level, to give incentives, but not aid, to both companies and householders to introduce cost-effective improvements. Lastly, it aims at going further regarding buildings, where an existing Community Directive applies, and possibly extending it to smaller premises in a manner that ensures cost-effectiveness and minimum additional bureaucracy<sup>67</sup>.

European Union has taken measures and initiatives to promote energy efficiency that is crucial for EU objectives in several policy areas such as energy, environment, and foreign affairs. However, EU could not be successful in implementing its policy yet. Therefore, union starts new programmes to provide more energy efficiency to achieve its target.

#### **1.2.4 EU Energy Programmes Concerning the Policy Dimensions**

European Union has initiated a number of energy related programmes. These programmes held different budgets for the projects funded. Despite their efforts and aims to tackle the problematic areas in energy related sectors, unfortunately these programmes could not bring out radical changes; instead they could only reflect the nice attitudes of the union to solve the problems. The problem was their limited budget for such ambitious aims. Therefore EU could only financed a number of pilot projects through these programmes. Thus, union chose the way to merge them and created a new energy programme called “Multiannual Energy Programme”.

First of all, multiannual energy programme covered the period from 1998-2002 and had a budget of 175 million Euros. Following this period, second Multiannual Programme;

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<sup>67</sup> Green Paper on Energy Efficiency..., [www.europa.eu.int](http://www.europa.eu.int)

“Intelligent Energy for Europe” was issued covering the period from 2003 to 2006. “Intelligent Energy for Europe” is the Community’s support programme for non-technological actions in the field of energy. Programme provides financial support of 215 million Euros to the initiatives in relation to renewable energies, energy efficiency, energy aspects of transport and their international promotion. Programme also specified the objectives to which actions will be directed. It set out six objectives: increasing energy efficiency by around 1% per year, the use of renewable energy in consumption from 6% to 12% by 2010, and the percentage of renewable resources in electricity production to 22.1%. It also aimed at raising the co-generated electricity production by 2010, and lastly developing the potential of renewable sources of energy, and promoting Kyoto mechanisms<sup>68</sup>.

“Intelligent Energy for Europe” is structured in four fields by merging four different programmes in the field of energy. First of all, it includes SAVE Programme on energy efficiency, and then reinforces renewable energy through ALTENER Programme. It also redirects the international action for promotion of the efficient use of energy and the use of energy supplied from renewable sources at the international level under COOPENER. COOPENER is created for the developing countries of Africa, Asia, Latin America and the Pacific. It aims to strengthen the existing capabilities of them for the aim of sustainable energy. Mainly two key actions have been identified for support under COOPENER; “energy policies, legislation and market conditions for enabling poverty alleviation in developing countries and strengthening local energy expertise in developing countries”<sup>69</sup>. Finally “Intelligent Energy for Europe” Programme supports initiatives in the field of transport, by Energy in Transport (STEER) Programme.

Moreover, European Union has initiated three more programmes, namely SYNERGY, CARNOT and SURE in the field of energy. Energy Framework Programme includes all of them together with ALTENER and SAVE Programmes. These Programmes expired in 2002. Therefore, all of these programmes are integrated into the “Intelligent Energy for Europe” Programme following the elapse of the period. From among the programmes, SYNERGY Programme is the one that runs the international cooperation component of the EU energy policy. “It finances co-operation activities with non-EU countries in the field of the

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<sup>68</sup> “Intelligent Energy for Europe”, [http://www.europa.eu.int/comm/energy/res/intelligent\\_energy/index\\_en.htm](http://www.europa.eu.int/comm/energy/res/intelligent_energy/index_en.htm), (May 27, 2005)

<sup>69</sup> Coopener, <http://www.managenergy.net/indexes/I357.htm>, (May 27, 2005)



formulation and implementation of energy policy to the mutual benefit of all parties concerned”<sup>70</sup>. It supports actions like advice and training, analysis and forecasting, closer dialogue and exchange of information, and regional trans-boundary cooperation in energy field.

Concerning the use of solid fuels in industrial plants, the Council of European Union adopted CARNOT Programme in December 1998. This Programme is designed for promoting the clean and efficient technologies, particularly for industrial plant using solid fuels. Solid fuels include hard coal, lignite, peat, oil shale and the heavy fraction of petroleum products. Within this context, the aim is to limit emissions, and to achieve the Best Available Technologies (BAT) at affordable cost. Programme mainly finances two specific measures; measures to foster cooperation between national, Community and international entities and the measures to foster industrial strategic cooperation through business workshops and seminars, industrial visits, studies, and evaluation groupings.

Lastly, SURE Programme is initiated on the nuclear sector. The Programme firstly takes measures at improving the conditions in transport of radioactive materials with regard to tackling the problems of safety, health protection and nuclear safety technologies. Secondly, Programme opens the way for further cooperation with the countries participating in the TACIS Programme. Lastly, it aims at taking safeguards about the TACIS countries in training, adding to experience, and technological updating in the matter of nuclear safeguards, cooperation on the accounting and control systems for nuclear materials, and the installation of modern equipment in logistics, evaluation and control systems.

Paradoxical to these ambitious goals, Multiannual Programme called “Intelligent Energy for Europe” has also a limited budget. Even though it is not an easy work with this budget to contribute to the solution of several problems in energy field and the proposed actions under these programmes, it reveals the good will of European Union to tackle them in some time.

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<sup>70</sup> Synergy, [http://europa.eu.int/comm/energy/en/pfs\\_synergy\\_en.html](http://europa.eu.int/comm/energy/en/pfs_synergy_en.html), (May 28, 2005)



### 1.3 Energy Policy and Enlargement

On May 1, 2004, European Union enlarged towards new members from the Central and Eastern Europe with Malta and Cyprus. This new enlargement wave is the largest one with 10 new members, namely Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, the Czech Republic and Slovenia. Population of EU reached 450 million. However, the main difference of this enlargement from the previous ones is not the population itself, but the socio-economic conditions of this population. “Average GDP per head in new members countries is 40% of the average level in the existing 15 EU member states”<sup>71</sup>.

This new enlargement wave will bring positive and negative results to EU Energy Policy, although they are not clearly defined. They may be clear after the evaluation of the EU energy statistics of 2005. Nevertheless, there are some projections and estimations about those results in terms of burdens or opportunities.

The first point on the disadvantage side is related to the structure of energy use and energy dependence. It is predicted while total energy demand in EU-15 would be increased around 10-15%, this increase would be more than 40% in Central and Eastern European countries by 2020<sup>72</sup>. This will lead to important changes in EU energy policy in all aspects, but mainly on security of energy supply. EU is mainly dependent on the fossil fuels as 78% of oil and 36% of natural gas is imported. And with the enlargement it is foreseen that in 2020 this will rise to 90% in oil and 70% in natural gas<sup>73</sup>.

This dependency would be more critical when considering dependency to a single supplier, which is Russia. The figure shows that “while in the WE countries the level of dependency on a single source hardly exceeds 30%, the CEE countries’ level of energy dependency on Russian oil and gas hovers between 50 and 100 percent”<sup>74</sup>. In this context, it would be more difficult for European Union to secure its energy supplies through diversification of energy supplies.

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<sup>71</sup> EU Enlargement”, <http://news.bbc.co.uk/2/hi/europe/2266385.stm>, (August 08, 2005)

<sup>72</sup> Armağan Candan (Ed.), *Avrupa Birliği'nin Enerji Politikası*, İktisadi Kalkınma Vakfı, 2. Baskı, İstanbul, 2004, p.25

<sup>73</sup> Green Paper..., <http://www.europa.eu.int/scadplus/leg/en/lvb/l27037.htm>

<sup>74</sup> Margarita M. Balmaceda, “EU Energy Policy and Future European Energy Markets: Consequences for the Central and Eastern European States”, 2002, p.6, <http://www.mzes.uni-mannheim.de/publications/wp/wp-42.pdf>, (July 24, 2005)

Secondly, liberalisation of EU energy market will be in need of greater efforts due to socialist past of new members. As in all post-Soviet countries, there is a monopolist company controlling all aspects of the electricity production and distribution process. Even though all new members had to complete their market openings to certain extent before becoming full members, particularly in electricity and gas sectors, there would be problems in implementation of market rules and transparent pricing. There are especially two difficulties before the market opening particularly on gas market of new members. These countries are highly dependent on the Russian gas and there is high dependency on gas use for household and heating use. Therefore, they cannot easily open their market to competition and set the prices according to market rules.

As the third disadvantage, providing greater energy efficiency will be more difficult in an enlarged EU. In CEECs, the amount of energy consumed per unit of GNP is more than four times higher than in Western Europe. It means that enlargement brings out higher energy intensity figures to EU total as a deficiency in energy sector.

Last disadvantage is on the environmental side of the energy use. Especially old technology nuclear power plants in new members could create problems in providing environmental security. Storing highly radioactive waste is still another important problem as regards nuclear plants.

On the other hand, enlargement would provide several advantages to European Union concerning energy sector. The geography of new members would be an advantage to secure EU's energy supply from Russia, Central Asia and the Middle East. EU needs Russian gas, and Russian gas is being carried through new EU members from Eastern Europe. Secondly, there would be created a new synergy in energy research and technology development in the energy sector. Lastly, energy related environmental problems affecting the whole continent would be acted easily, as they are cross-border problems.

## 2. TURKEY'S ENERGY CHAPTER IN EU MEMBERSHIP

Turkey is still a developing country with its increasing energy demand. At the beginning of the 1960s, energy consumption in Turkey is too low for that level of industrialisation. Approximately half of this energy consumption was met by the renewable energy sources. It is quite interesting that Turkey's energy production met 80% of its energy consumption in 1960s.

Decade of 1970 is also a turning point for Turkey concerning the energy sector. Turkey has seen rapid urbanisation and industrialisation in 70s. This resulted in replacement of renewable resources by oil in energy balance. On the same decade, world oil crises occurred. The first oil crises of 1973 showed that the Turkish economy is also dependent on external energy supplies as the other developing and developed countries in the world. This crisis situation lasted till 1984. 1980s is another period of rapid industrialisation both in the world and in Turkey. For this reason new energy resources are needed. It was mainly natural gas that became a serious alternative to oil.

According to 2002 data, oil is still the most used energy resource in Turkey by 39%. Coal is at the second level with its 27% consumption. Natural gas became the third most used energy resource by 21%. And lastly 13 per cent of energy is produced by hydroelectric power stations. In electricity generation, while gas is at the first level with its share of 40.6%, hydroelectric power takes the second level<sup>75</sup>.

In line with the data above, Turkey can be classified as an energy dependent country. National resources meet only 31% of its primary energy needs. Despite this data, Turkey is relatively less dependent when compared with some European countries. Whereas the proportion of meeting energy demand with primary energy production was 42% in Turkey in 1995, it was 12% in Portugal, 32% in Spain, 19% in Italy, and 38% in Greece<sup>76</sup>. Nevertheless, it is foreseen that this level in Turkey will decrease in near future.

Since Helsinki Summit where Turkey was declared as a candidate for EU membership, both EU and Turkey have been working for Turkey's alignment in EU policy areas and chapters.

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<sup>75</sup> Cansevdi, p.54

<sup>76</sup> Cansevdi, p.55

This is imperative, as Turkey needs revising her energy policy. On the other hand, EU normally would accept a country whose energy policy is adapted to that of EU. Therefore, in the light of the figures stated above, and the works for alignment in EU energy policy, Turkey set its priority areas in energy sector.

First of all, Turkey aimed at three major dimensions of EU energy policy such as liberalising the sector, increasing the efficiency and providing transparency by creating competition in the sector. Secondly, Turkey has a clear ambition of becoming an energy corridor between East and West, which will also secure energy supplies of both EU and Turkey. So, energy supply security is another priority of Turkey in order to lessen the dependency. Lastly, priority is given to sustainable development and environmental factors with development of energy technologies.

8<sup>th</sup> 5-year Development Plan set out important objectives and realities with regard to energy sector in Turkey for the period of 2001-2005. According to the Plan, in 2010, Turkey will meet 98% of its oil needs through imports. In order to eliminate this dependency, coal and renewable energy resources are recommended to use in bigger ratios in energy balance. Turkey should also address to the tackling of CO<sub>2</sub> emissions problem. Moreover, according to the Plan, Turkey should aim at an energy system operating according to free market rules and energy efficiency<sup>77</sup>.

## **2.1 Adjustment Work in Energy Sector**

Turkey is obliged to adjust its laws and implement them in all sectors under each chapter of the negotiations, in order to become a full member of the EU. In this context, European Union issues Accession Partnership Documents where priority areas are listed for Turkey to align with EU's accession criteria. The first document was announced in March 2001, while we are going to examine the last one announced in April 2003. In this document, EU lists the short-term and medium-term liabilities of Turkey concerning the energy sector.

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<sup>77</sup> AB'nin Enerji Politikası ve Türkiye, pp.30, 34.

According to Accession Partnership Document, Turkey should undertake the followings in the short-term<sup>78</sup>:

First of all, establish a programme for the adoption of the energy *acquis*, particularly that concerning issues other than the internal energy market. Secondly, Turkey should ensure independence and effective functioning of the regulatory authority for the electricity and gas sectors; grant the authority the means to carry out its tasks effectively. Turkey should also ensure the establishment of a competitive internal energy market, in compliance with the electricity and gas directives. Moreover, she ought to design and start to implement a programme to reduce the energy intensity of the Turkish economy and to increase the use of renewable energy sources. And lastly, Turkey should ensure further alignment with the energy efficiency *acquis* and enhance the implementation of energy conservation practices.

Accession Partnership Document also lists the medium-term liabilities of Turkey for the accession. For the document in the medium-term: Turkey should restructure energy utilities and open up energy markets in conformity with the *acquis*; further strengthen administrative and regulatory structures. Secondly, she should remove restrictions on the cross-border trade in energy. Turkey should also promote the implementation of projects in Turkey listed as projects of common interest in the European Community TEN-Energy Guidelines. And lastly, she ought to complete alignment of national legislation with the *acquis*<sup>79</sup>.

Upon the Accession Partnership, the Turkish Government prepares its National Programme in which she declares its programme of adjustment concerning issues mentioned in Accession Partnership Document. Turkey announced the last National Programme in June 2003.

According to this Programme, Turkey set out her priorities in the energy sector as follows<sup>80</sup>:

Upgrading security of energy supply; diversification of resources and imports; avoiding dependence on a single source or country; energy conservation and promoting energy efficiency; protection of the environment; motivating private sector investment and

<sup>78</sup> Turkey: 2003 Accession Partnership, pp.10, 18, [http://www.turkses.com/rr\\_tr\\_2004\\_en.pdf](http://www.turkses.com/rr_tr_2004_en.pdf), (July 31, 2005)

<sup>79</sup> Turkey: 2003 Accession..., [http://www.turkses.com/rr\\_tr\\_2004\\_en.pdf](http://www.turkses.com/rr_tr_2004_en.pdf)

<sup>80</sup> National Programme for the Adoption of the Acquis, 2003, p.351, [http://europa.eu.int/comm/enlargement/turkey/pdf/npaa\\_full.pdf](http://europa.eu.int/comm/enlargement/turkey/pdf/npaa_full.pdf), (July 31, 2005).

expanding privatisation activities in the power sector; harnessing new and renewable energy sources within the energy cycle; encouraging R&D activities on energy technologies with particular reference to energy efficiency and renewable energy sources.

Both Accession Partnership Documents and National Programmes are in line with the main dimensions of EU Energy Policy. They basically aim at establishing a free energy market, security of energy supply and environmental protection.

On the other hand, European Commission prepares Regular Progress Reports each year for the accession countries. They are the tools of the EU to assess the candidate countries whether they fulfil their liabilities to become a full member. In this context, we can see what Turkey has done so far concerning energy policy and what she ought to do for further alignment.

It is worth to examine Progress Reports since 2001. 2001 Progress Report appreciates Turkey for the establishment of the regulatory authority, Energy Market Regulatory Authority (EMRA) and adoption of the laws on electricity and gas sectors. Nevertheless, the report criticised the laws regarding their content. According to the report, laws do not exactly meet the requirements of the EU directives concerning the sectors.

2002 Progress Report mainly assesses the market openings in energy sector. It appreciates the opening of Electricity market for the consumers.

2003 Progress Report generally evaluates Turkey's progress positively in energy sector. Report appreciates the opening of the gas and oil markets, strengthening of the administrative capacity of the regulatory authority, progress in renewable energy and effective use of energy. However, the Report still points out the deficiencies of the Turkish authorities on the oil stocks and the security of energy supply, on nuclear energy and solid waste, on limitations before the trans-border trade. Lastly, the Report wants Turkey to show further efforts to complete the alignment with the *acquis*.

The last Progress Report of 2004 reported some progress in adopting the community energy *acquis*\*. Report appreciates Turkey for the alignment with regard to the security of energy supply. In doing so, report emphasizes the importance of the Petroleum law adopted in December 2003 in line with the minimum stocks of oil. In addition, report also stresses the law as it empowers the EMRA to regulate and supervise the petroleum products market. Moreover, the Report appreciates Turkey for further efforts for the establishment of several pipelines for the security of both Turkey's and EU's energy supply. Report emphasizes the importance of Turkey-Greece gas interconnector and "Nabucco Project" connecting Turkey-Bulgaria-Romania-Hungary-Austria with a pipeline projected to carry Caspian gas to Central Europe.

Concerning the competitiveness and the internal energy market, the Commission stresses the studies on further privatisation and market opening efforts on electricity sector, which is 28%. On the other hand, unpaid bills and losses in distribution remain as main problems in electricity sector reaching 20% of the electricity generated in 2003. The Commission suggests Turkey to take further legislative and administrative steps in order to achieve proper functioning of a competitive electricity market in line with the *acquis*. With regard to gas market, the Commission is satisfied with the current market opening that is 80%, and privatisation of gas distributors. However, the report is not satisfied with the Boru Hatları ile Petrol Taşıma A.Ş. (BOTAS) monopoly on domestic supplies, international trade, and transmission and storage activities.

Moreover, the Report regards Turkish government efforts positively on the energy efficiency by adopting a comprehensive energy efficiency strategy, yet evaluates Turkey's progress so far as weak. On the other hand; it negatively reports that no specific progress has been made with regard to renewable energy, solid fuels and nuclear energy. It also evaluates Turkey's performance on the promotion of renewable energy sources as weak. Regarding the renewable energy resources, the Report suggests Turkey to adopt a Renewable Energy Law. Furthermore, it completes with a clear opinion that Turkey should increase its efforts to make good use of its important potential for renewable energy sources and set ambitious targets.

2004 Progress Report concludes with the remark "Although Turkey has made progress with respect to adopting the Community *acquis* and is trying to accelerate its effective

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\* 2004 Regular Report on Turkey's Progress towards Accession, 2004, p.117, [http://europa.eu.int/comm/enlargement/report\\_2004/pdf/rr\\_tr\\_2004\\_en.pdf](http://europa.eu.int/comm/enlargement/report_2004/pdf/rr_tr_2004_en.pdf), (July 31, 2005).

implementation, its overall alignment remains limited and uneven across the different areas of energy policy”<sup>81</sup>.

### 2.1.1 Liberalisation of the Energy Sectors

**Electricity:** Share of electricity in total energy consumption increases owing to its advantages in consumption and transmission.

According to data<sup>82</sup>:

While total established electricity power was 31.846 MW. at the end of 2002, it reached 36.106 MW. at the end of 2003 through new energy plants. On the other hand, whereas electricity consumption was 132,6 billion kilowatt/h at the end of 2002, it reached 142,1 billion kilowatt/h with a 7.2% increase at the end of 2003.

These figures are expected to rise in forthcoming years due to rapid growth in economy. In order to meet this demand, Turkey has to take new measures in electricity generation and use.

Privatisation activities can be considered as the first mechanism of the measures, started in 1984. Three new models in the sector are initiated; namely Build-Operate-Transfer (BOT), Build-Operate (BO), and Transfer of Operating Rights (TOOR) models. These models aimed at increasing the domestic and foreign capital flow to energy sector. They resulted positively and new electric power plants have been established after the initiation of the models. Especially BOT model was successful by considering 18 new power plants established according to the model.

Turkey adopted the electricity law, called “Electricity Market Law” in March 2001. This was the initiative in line with the Electricity Directive of the EU adopted in 1996, called “Electricity Market Law”. This law is directed to liberalisation and opening of the market. After the expiration of the transition period stated in the law, the market is opened in December 2002. However, Turkey could not yet reach the level of desired market opening. 2004 Commission Progress Report for Turkey stressed the same low level of market opening as

<sup>81</sup> 2004 Regular Report..., p.117,

[http://europa.eu.int/comm/enlargement/report\\_2004/pdf/rr\\_tr\\_2004\\_en.pdf](http://europa.eu.int/comm/enlargement/report_2004/pdf/rr_tr_2004_en.pdf).

<sup>82</sup> Cansevdi, p.58



lower than the EU level. According to Report, this current market-opening figure of 28% for the eligible customers consuming more than 7.8 GWh per annum will remain same till 2009. It is estimated that after 2009, in the light of developments in security of supply, the market will gradually be opened up in order to reach 100% by 2011<sup>83</sup>. On the other hand, the market opening in European Union reached 66% in 2000, and 70% in 2002. Further opening is estimated as 82% for the year 2005<sup>84</sup>.

After the electricity law, Turkey established Energy Market Regulatory Authority in November 2001, the institution responsible for the Energy Market Regulation. This institution is mainly responsible for the regulation of the electricity, gas and oil markets. It is directed its activities to create financially powerful, stable and transparent energy market, and independent regulation and auditing in this market.

In Turkish electricity production, mostly state institutions do transmission and distribution activities. There are two main bodies; Türkiye Elektrik Üretim-İletim A.Ş (TEAŞ) responsible for production and transmission activities, and Türkiye Elektrik Dağıtım A.Ş. (TEDAŞ) responsible for distribution activities. Private sector newly takes part in the electricity generation activities.

In an overall evaluation, market opening in electricity sector is still lower than the EU levels. Turkey must open its markets to all costumers in line with EU. However, its realisation is not a short-term work.

**Oil and Gas Sectors:** Oil and gas are the two most used energy resources in Turkey. According to 2001 data, 40% of Turkey's energy consumption is met by oil and 19% by natural gas<sup>85</sup>. It is foreseen that especially the share of gas will substantially increase in short-term.

In April 2001, "Natural Gas Market Law" was adopted in order to align with the European Union Gas Directive, adopted in 1998. This law aims at more liberalised gas market for higher quality, cost-effective and environmentally friendly supply of gas. Before the law, import, transmission, distribution and pricing activities had been all under the responsibility of

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<sup>83</sup> 2004 Regular Report..., [http://europa.eu.int/comm/enlargement/report\\_2004/pdf/rr\\_tr\\_2004\\_en.pdf](http://europa.eu.int/comm/enlargement/report_2004/pdf/rr_tr_2004_en.pdf), p.114

<sup>84</sup> Türkiye'nin Enerji Sorunları ve Çözüm Önerileri, TÜGİAD, p.101

<sup>85</sup> AB'nin Enerji Politikası ve Türkiye, p. 158.

BOTAS. Law opened only the distribution activities to privatisation. Gas market opening, on the other hand, initiated in November 2002, after the adoption of law. “Natural Gas Market Law” encompasses customers consuming min 1 billion m<sup>3</sup> gas per year. This means the gas market opening would reach 80%<sup>86</sup>.

Concerning the gas sector, there is a monopoly problem; BOTAS keep this domestic monopoly regarding all activities except distribution. European Union recommends the break of this domestic monopoly of BOTAS. On the other hand, there is a clear figure that 80% market opening is in line with the estimated gas market openings for the EU itself. This law also authorised EMRA as the main regulatory body for the gas sector.

On the other hand, the most used energy resource of Turkey that is oil receives more consideration. As the magnitude of Turkish oil market reaches \$27-30 billion, the regulation of the market should have the most weight. However, the “Oil Market Law” has been recently adopted in December 2003. This law intends to reach transparent, equal and stable market activities for the secure and economical supply of oil to the costumers.

This law also requires licences for the companies who desire to carry out market activities. Law also brings out the mandatory duty of holding insurance regarding the companies. Moreover, obtaining of oil from domestic and foreign reserves by the persons is liberalised within certain limits. Therefore, the pricing will be ensured by the market mechanisms freely in the market.

Concerning the oil market, Energy Market Regulatory Authority is also authorised for the licences, controls and regulation of the main activities of the market.

### **2.1.2 Security of Energy Supply**

Turkey is a large consuming market for oil and gas. This large market is heavily dependent on imported gas and oil. Current gas production in Turkey meets 2.8% of domestic consumption

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<sup>86</sup> AB'nin Enerji Politikası ve Türkiye, p.160.

requirements<sup>87</sup>. It is predicted that this level will decrease due to increase in gas consumption. For the oil, Turkey meets 10% of domestic consumption requirements<sup>88</sup>. Therefore, security of energy supply would be a major priority in Turkey's energy policy.

Turkey has made some progress regarding the security of energy supply. First of all, Turkey has signed Energy Charter Treaty in February 2000. This Treaty aims at free market system in energy such as market access, and competitive markets.

Secondly, the new "Petroleum Law" adopted in 2003, made clear the issue of holding 90 days' oil stock. According to law, Turkey holds 90 days of emergency oil stocks in accordance with requirements of the International Energy Agency.

Lastly, most significant and in practice steps are being held with regard to new pipeline projects carrying oil and gas from the Middle East and Caspian region to Turkey and from Turkey to European markets. These pipeline projects would help Turkey for both diversifying its resources and carrying these resources to European markets.

European Commission sponsors some of these projects under Trans European Network Programme. The first project is Turkey-Greece gas interconnector project as a part of South European Gas Ring Project. This pipeline will carry Iranian and/or Caspian gas to Greece first and through another pipeline from Greece to Italy to other South European markets. This gas pipeline is due open at the end of 2006.

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<sup>87</sup> Ayhan Demirbaş, Ayşe Şahin Demirbaş, A. Hilal Demirbaş, "Turkey's Natural Gas, Hydropower, and Geothermal Energy Policies, **Energy Sources**, Vol. 26 Issue 3, Feb., 237-248, 2004, from EBSCO Host Research Databases, <http://web23.epnet.com>, (September 06, 2005)

<sup>88</sup> Güngör Tuncer, Mehmet Faruk Eskibalçı, "Türkiye Enerji Hammaddeleri Potansiyelinin Değerlendirilebilirliği", **İstanbul Üniversitesi Yerbilimleri Dergisi**, C.16, 81-92, 2003, [http://www.istanbul.edu.tr/eng/jeoloji/library/dergi/c\\_16\\_s\\_1/c\\_16\\_s\\_1\\_ss\\_81.pdf](http://www.istanbul.edu.tr/eng/jeoloji/library/dergi/c_16_s_1/c_16_s_1_ss_81.pdf), (September 06, 2005)

According to Roberts<sup>89</sup>:

The very concept of an interconnector is strategic, in that the line, as envisaged, would be able to carry gas from Italy to Greece and Turkey, or from Turkey to Greece and Italy. In other words, it would serve as a link between two main supply systems, increasing flexibility of supply.

Another outstanding project called “Nabucco” will carry natural gas from Iran and/or Caspian region to Central Europe via Turkey and countries such as Bulgaria, Romania, Hungary and Austria. This pipeline is due open by 2009-2010. Moreover, through Baku-Tbilisi-Ceyhan (BTC) pipeline carrying oil and Baku-Tbilisi-Erzurum (BTE) or South Caucasus Pipeline (SCP) carrying gas, Caspian oil and gas will be transported to Turkey.

In addition to oil and gas projects, Turkey is interconnecting to electricity network of the neighbouring European countries. In this context, integration to European Electric Network is seen as the major objective. Turkey is taking steps to become a member of this Network. On the other hand, Turkey is also seen as the part of Mediterranean Electricity Ring that encompasses the countries such as Egypt, Iraq, Lebanon, Jordan and Syria. When Turkey is connected to European Electricity Network, these countries will also connect themselves to Europe via Turkey.

On the security of energy supply, 2004 Commission Progress Report for Turkey appreciates Turkey especially for the projects that connect rich oil and gas reserves of Caspian Basin and the Middle East to Europe. It is clearly seen that those project will also help EU to secure its energy supply<sup>90</sup>.

### **2.1.3 Environmental Concerns**

The most obvious energy related environmental problem is the global warming. The second is the pollution due to energy use in industry, transport and households using energy fuels. In order to overcome these problems, EU adopted some measures in its energy policy as

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<sup>89</sup> John Roberts, **The Turkish Gate: Energy Transit and Security Issues**, CEPS EU-Turkey Working Papers, Issue 11, November, 2004, p.10.

<sup>90</sup> 2004 Regular Report..., [http://europa.eu.int/comm/enlargement/report\\_2004/pdf/rr\\_tr\\_2004\\_en.pdf](http://europa.eu.int/comm/enlargement/report_2004/pdf/rr_tr_2004_en.pdf), p.116

environmental concerns. In its alignment, Turkey is also subject to several changes in its energy related environmental concerns. These new methods are both environmentally friendly and economic. These are also precautions before further environmental problems.

Three aspects of Turkey's alignment to EU's environment related energy policy are climate change policy, renewable energy and energy efficiency. EU Commission also evaluates Turkey's performance from these aspects in its Progress Reports.

### **2.1.3.1 Turkey's Climate Change Policy**

Turkey didn't become a party to United Nations Framework Convention on Climate Change (UNFCCC) in 1992 due to the dispute over the annexes of Framework. There are two lists of countries under UNFCCC. Annex I lists Organisation for Economic Co-operation and Development (OECD) countries and Central and Eastern European Countries due to their economies that are in transition periods. On the other hand, Annex II lists only OECD countries. According to UNFCCC, Turkey is put under both Annex I and II at the same time. In this context, Turkey refused to sign UNFCCC in Rio and didn't become a party to it<sup>91</sup>.

Turkey did refuse to sign the Framework Convention, as Turkey's greenhouse emission level per capita is far less than the major developed countries in the world. As the table shows, Turkey is the 75<sup>th</sup> country regarding CO<sub>2</sub> emission per capita. However, according to the framework programme, Turkey will be expected to cut greenhouse gases, particularly energy related CO<sub>2</sub> to the level of 1990 till 2000. These levels were indeed established for developed countries that emit most of greenhouse gases in the world.

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<sup>91</sup> Murat Türkes, "Türkiye-İklim Değişikliği Çerçeve Sözleşmesi İlişkileri", 2003, <http://www.meteor.gov.tr/2005/arastirma/iklimdegis/iklimdegis10.htm>, (July 25, 2005)

**Table 3**

**Turkey's Rank in the World According to CO<sub>2</sub> Emissions**

	1995	1996	1997	1998	1999
Total CO <sub>2</sub> emission	25	25	23	24	23
CO <sub>2</sub> /population	80	79	75	76	75
CO <sub>2</sub> /Gross national product	63	71	70	71	60
CO <sub>2</sub> /GNP (purchasing power)	81	84	81	81	55

**Source:** IEA, 2001, <http://www.meteor.gov.tr/2005/arastirma/iklimdegis/iklimdegis10.htm>, (July 25, 2005)

Turkey demanded its position excluded from the Annex II and joining to the Convention as an Annex I country for several times. Eventually, this position of Turkey is accepted on the 7<sup>th</sup> Conference of the Parties in 2001 Marrakech as an Annex I country. Nevertheless, Turkey is invited to accept having some special features differing itself from the Annex I countries.

Eventually, Turkey fully became a party to UNFCCC in October 2003 through the Law adopted by Turkish Parliament. However, Turkey is not a party to Kyoto Climate Change Protocol yet, as when Turkey signed Kyoto Protocol in 1997, Turkey was not a party to UNFCCC. Therefore, there is no liability for Turkey to limit greenhouse gases in a certain amount within the framework of Annex B of Kyoto Protocol yet.

### **2.1.3.2 Renewable Energy in Turkey**

Renewable or alternative energy resources are the key resources for supplying security of energy supply and providing environmental protection, as they are 100% indigenous energy. European Union is devoting its research mainly on renewable energy resources. It set ambitious targets for the share of renewable energy in total energy balance. According to 2002 data, Turkey meets 13 per cent of its energy demand from renewable resources, mainly by hydroelectric power stations<sup>92</sup>. Despite the fact that this level is higher than the EU level for

<sup>92</sup> Cansevdi, p.54

which 12% is still a target, in the light of the research, Turkey utilizes little of its potential concerning renewable energy.

According to the research on Turkey's renewable energy potential, Turkey uses only a small per cent of its potential. The first and the most widely used renewable energy source of Turkey is the hydropower. Turkey has considerable hydroelectric power potential. Turkey's utilizable hydroelectric potential is 125 billion kWh per year. However, she produces 42 billion kWh per year that means she only exploits 34% of its economically and technically exploitable hydroelectric power potential<sup>93</sup>. Turkey tries to increase this capacity especially through small hydroelectric power plants. This would add more 38 billion kWh to the existing capacity. Eastern Black Sea, Western and Central Mediterranean and Menderes Basins are the regions carrying these small hydroelectric potential.

Biomass is another type of renewable energy source. Classic biomass energy sources are wood and the waste products of plants and animals. On the other hand, modern biomass energy is heat, electricity and diesel fuel for the vehicles generated from wood, farming activities and wastes. It is forecasted that Turkey has 25 billion ton petrol equivalent biomass energy potential per year<sup>94</sup>.

Turkey has seventh largest geothermal energy potential in the world, and has to improve its use in electricity production and in heating. Turkey mostly has heat-based geothermal potential. Whereas there are 80 towns that are suitable for heating from geothermal power, currently seven towns use geothermal power for heating. In other words, although Turkey has geothermal potential to heat 5 million dwellings, she can only heat 50,000 dwellings.<sup>95</sup> On the other hand, geothermal power can also be used to produce electricity. There is only one geothermal electricity plant in Turkey, in Denizli producing 20.4 MW electric per year. Turkey is still preparing "Geothermal Energy Potential Atlas" completed due end of 2005.

Wind power is another renewable energy source that is being developed in number of European countries. Although Turkey is estimated to have large potential in wind power, there

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<sup>93</sup> İbrahim Atılgan, "Türkiye'nin Enerji Potansiyeline Bakış", **Gazi Üniversitesi Mühendislik-Mimarlık Dergisi**, No.1-2, Vol.15, Aralık 2000, p.35

<sup>94</sup> Atılgan, p. 35

<sup>95</sup> **21. Yüzyıla Girerken Türkiye'nin Enerji Stratejisinin Değerlendirilmesi**, TÜSİAD, İstanbul, Aralık 1998, p.124

is not any discrete research showing the real wind power potential. It is estimated that wind power energy is mostly utilizable in Marmara, Aegean, Mediterranean and Black Sea coasts of Turkey, with 12.4 billion kWh/year potential. Turkey only utilizes 15% of this potential<sup>96</sup>.

Turkey is described as the country within the sun belt of the world. The yearly sunbathing period of Turkey is 2,609 hours that equals approximately 30% of the whole year<sup>97</sup>. Despite these figures, Turkey nearly does not use this renewable type of energy at all. Turkey only utilizes its solar power in heating water in especially Southern regions.

In utilizing its vast potential, particularly on the side of studies in renewable energy, Turkey has some problems.

According to the report prepared by TÜBİTAK<sup>98</sup>:

It is reported that the studies on the renewable energy are in small quantities with unnecessary information. These studies are not directed for developing new technologies. Turkey is also criticised, as it could not separate a considerable budget for their development when compared to developed countries. Moreover, Turkish Energy Institute could not be established and energy-engineering education is not brought into the realization.

Moreover, there is another problem in the cost calculation of renewable energies. In their cost calculation, environmental and social costs are not being taken into consideration. This gives a negative image about their cost-effectiveness.

2004 Commission Progress Report reported that Turkey has made no progress with regard to renewable energy. Report also recommends Turkey to adopt a Renewable Energy Law and to increase its efforts to make good use of its important potential for renewable energy sources and set ambitious targets<sup>99</sup>.

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<sup>96</sup>Atılğan, p. 36

<sup>97</sup> Atılğan, p. 36

<sup>98</sup> TÜBİTAK-TTGV Bilim-Teknoloji-Sanayi Tartışmaları Platformu, enerji Teknolojileri Politikası Çalışma Grubu Raporu ve Çevre Dostu ve Yenilenebilir Enerji Kaynakları ile İlgili Teknolojiler Alt Grup Raporu, [www.tubitak.gov.tr/btpd/btspd/platform/enerji/altgrup/cevre](http://www.tubitak.gov.tr/btpd/btspd/platform/enerji/altgrup/cevre). (August 10, 2005)

<sup>99</sup> 2004 Regular Report..., [http://europa.eu.int/comm/enlargement/report\\_2004/pdf/rr\\_tr\\_2004\\_en.pdf](http://europa.eu.int/comm/enlargement/report_2004/pdf/rr_tr_2004_en.pdf), p.117



Following the Commission Progress Report, In May 2005, Turkish Parliament adopted “Renewable Energy Law”. This law is mainly directed to electricity production from renewable energy sources. Law aimed at economic and high quality utilization of renewables, diversification of renewable energy resources, decrease in greenhouse gases in quantities, reuse of wastes, and environmental protection<sup>100</sup>. Law also lists main renewable energy resources in Turkey. These are wind power, solar power, geothermal and biomass power and river type hydroelectric power.

### 2.1.3.3 Energy Efficiency

Energy efficiency is crucial both from the point of environment and economy, efficiency leads less greenhouse gasses emission and provides cost-effectiveness through using less energy for the same unit of production. European Union pays attention to energy efficiency in all over Europe through new directives and Green Papers. Turkey, on the other hand, has taken few initiatives concerning energy efficiency.

One of the most widely used way for reaching efficiency is savings in different sectors. According to the study, “Turkey’s total potential for energy saving reaches 20 million ton petrol equivalent per year”<sup>101</sup>. This amount equals to one third of total energy consumption in one year.

Concerning the saving method, Turkey adopted the regulation for increasing energy efficiency in the industrial sector in 1995. Regulation made 600 industrial plants obligatory for hiring an energy administrator. This number is planned to increase to 1250 plants. After the regulation, Centre for National Energy Saving was established to give trainings on energy saving. Energy efficiency of the Turkish industry is programmed as 10% increase through the trainings at the centre.

Nevertheless, these initiatives are not found enough to tackle the problem for Turkey. 2004 Commission Progress Report found Turkey’s progress weak concerning the energy efficiency. Energy intensity of the Turkish economy is found high. The Commission recommends Turkey adopt “Energy Efficiency Law” in order to complete the alignment with the *acquis*. Report also

<sup>100</sup> [www.nethaber.com.tr](http://www.nethaber.com.tr), (July 24, 2005)

<sup>101</sup> Cansevdi, p.70

emphasizes the need to review current status of the National Energy Efficiency Conservation Centre. On the other hand, the Report appreciated Turkey for adopting Energy Efficiency Strategy for further alignment with the acquis<sup>102</sup>.

## 2.2. Accession Negotiations

Membership negotiations for Turkey has been launched on 3<sup>rd</sup> of October. This would be a highly challenging process for Turkey and predicted to last for at least ten years. Whereas the main procedure for the negotiations is the adoption of the full EU acquis on thirty five different chapters, Turkey would find the chance to have “transition periods” and “derogations” concerning each sector.

First Progress Report of the negotiation process of Turkey is declared on November 9, 2005<sup>103</sup>. Report generally appreciates Turkey for her performance regarding security of energy supply, with special reference to Nabucco Project and Turkey-Greece Gas Interconnector. Nevertheless, according to report, Turkey does not really show a good performance in market liberalisation and especially environmental concerns of energy. According to report, electricity and gas market openings remain same and BOTAS monopoly on gas market activities are still existing. Moreover, Turkey should adopt an energy efficiency framework law. Lastly, on renewable energy, whereas Turkey adopted its law, she did not declare any target for 2010.

Concerning the negotiations, it is worth to examine energy chapter and related concerns of environment chapter for the alignment. In doing so, we can use CEECs’ accession periods as a reference, particularly Poland, as the case study to examine the possible process of negotiations for Turkey and most demanded “transition periods”.

### 2.2.1 Case Study-Poland

Under energy chapter, most of the accession countries received “transition periods”, particularly concerning the Directive for holding minimum oil stocks. Concerning this Directive, according to study by Economic Development Foundation, transition periods of

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<sup>102</sup> 2004 Regular Report..., [http://europa.eu.int/comm/enlargement/report\\_2004/pdf/rr\\_tr\\_2004\\_en.pdf](http://europa.eu.int/comm/enlargement/report_2004/pdf/rr_tr_2004_en.pdf), p.117

<sup>103</sup> European Commission, Turkey 2005 Progress Report, COM (2005) 561 final, Brussels, November 2005.

accession countries are varying as for Czech Republic, and Slovenia till end of 2005, for Malta till 2006, for Cyprus 2007, Poland and Slovakia till 2008, and Estonia, Latvia and Lithuania till 2009<sup>104</sup>. High costs of holding 90 days' average oil stock is the main reason for accession countries for demanding "transition periods".

Secondly, although a number of countries demanded "transition periods" to implement EU Electricity and Natural Gas Directives, only two countries could receive, as the Czech Republic received to implement Natural Gas Directive till the end of 2004, and Estonia received to implement Electricity Directive till the end of 2008. As in old Eastern Block countries, liberalisation is a new and major concern, due to their old interventionist policies, particularly due to state monopoly in energy sector, liberalisation process needed more progress. Another important concern for EU is the nuclear safety in CEECs. In Accession Treaties of Lithuania and Slovakia, there held some protocols concerning nuclear reactors, regarding safety.

From among CEECs, Poland can be taken as an example for Turkey, particularly concerning negotiations in environment chapter. Whereas all CEECs have different energy structures from Turkey such as their relatively limited free market experience, Poland is still an example for "transition periods". With regard to energy chapter, Poland demanded "transition period" concerning two articles of Natural Gas Directive, on accession of third parties to natural gas market. Poland legitimised this demand by showing the reason as its gas market is not yet powerful enough to compete with free market conditions of the union. On the other hand, Turkey highly liberalised its gas market even before the start of accession negotiations. 80% of Turkey's gas market is now liberalised. The only problem is the monopoly of BOTAS on market activities except distribution.

Poland also demanded "transition period" on the Directive imposing stock of 90 days' average daily consumption. Whereas Poland demanded the period till the end of 2010, EU gave it till the end of 2008. Poland claimed that building stocking establishments is a major financial burden, so she can only align with the Directive after a certain period of time. On the other hand, Turkey adopted her new "Petroleum Law" where holding minimum stock of crude oil is regulated. However, 2005 Progress Report reported that "following recent oil price increases,

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<sup>104</sup> Avrupa Birliđi ile Katılım Müzakereleri Rehberi, İktisadi Kalkınma Vakfı Yayınları No: 184, İstanbul, Şubat 2005, p.279.

companies have used their oil stocks to compensate, and oil stocks are currently below required levels”<sup>105</sup>.

Concerning environment chapter, negotiations will be even more severe than energy and any other chapter. As it is stressed in detail, energy production and use is a source of number of major environmental problems. Therefore, environment chapter of the EU acquis involves energy related Directives to be aligned during the negotiations. Particularly, Directives under Industrial Pollution and Risk Management, and Air Quality, accession countries had and still have to make considerable investments, so is Turkey.

Poland, as the case study, has also received a number of “transition periods” regarding environment chapter under Air Quality and Industrial Pollution and Risk Management that are also related to energy issues. Of all these “transition periods” given under related headings, the first aim is to reduce gas emissions from large combustion plants and industries. According to study by İKV; under Industrial Pollution, as regards the large combustion plants (Directive 2001/80/EC), to reduce the emissions from a limited number of pre-1987 plants, Poland received “transition” until the end of 2015<sup>106</sup>.

The second measure is also related to reducing gas emissions to provide better air quality. In order to implement the Directive 94/63/EC on Control of Volatile Organic Compound (VOC), resulting from the storage of petrol and its distribution from terminals to service stations, Poland has received “transition period” until the end of 2005. Besides this, as regards heavy fuel oils, Poland is allowed to use fuel oils with a sulphur content higher than required under the EU acquis until the end of 2006.

Turkey, on the other hand would have a more challenging negotiations regarding the environment chapter. Turkey has more and severe environmental problems compared to Poland and all other CEECs, thus will have to make more investments to implement EU Directives. According to the project calculating cost of alignment in environment chapter, particularly regarding Large Combustion Plants and Integrated Pollution Prevention and

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<sup>105</sup> Turkey 2005 Progress Report, p.86.

<sup>106</sup> Avrupa Birliği ile Katılım Müzakereleri Rehberi, pp. 359, 360.

Control, only public sector investment is predicted to be around 7 billion EUROS<sup>107</sup>. Therefore, it is most probably that Turkey would receive more “transition periods” and Turkish public and private sectors will be more challenged in terms of investments compared to Poland.

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<sup>107</sup>Türkiye’de Çevre ile İlgili Mevzuatın Analizi Projesi Final Raporu (MEDA/TUR/ENLAERG/D4-01), Carl Bro Environment Consortium, Ocak 2002.

### 3. THE ROLE OF ENERGY IN TURKEY'S EU MEMBERSHIP

Energy is one of the most important trump cards of Turkey in full membership road to EU. As European Union imports most of its energy from the region neighbouring Turkey, Turkey would play a great role for providing EU's security of energy supply. The Middle East, and The Caucasus could be connected to Europe via Turkey through several pipeline projects. These mutual benefits would lead a greater cooperation between the union and Turkey.

The Independent Commission on Turkey points out this role clearly<sup>108</sup>:

Moreover, Turkey's geopolitical position and close links with tens of millions of Turkic people in neighbouring countries could help secure European access to the enormous wealth of resources in Central Asia and regions of Siberia, making Turkey a vital factor for Europe's security of energy supplies coming from the Middle East, the Caspian Sea and Russia.

Turkey has already been in cooperation with the EU on energy field under Euro-Med Partnership for last years and will be in deeper cooperation with several pipeline projects to become one of the main energy outlets of the European Union.

#### 3.1 EU-Turkey Cooperation in Energy Field under EU-MED Partnership

EU-Mediterranean Partnership or so-called "Barcelona Process" was set up in Barcelona in 1995. This process is mainly directed towards the cooperation between EU members and their 12 Mediterranean partners such as Algeria, Cyprus, Egypt, Israel, Jordan, Lebanon, Malta, Morocco, Palestinian Authority, Syria (Mashrek), Tunisia (Maghreb) and Turkey (Libya has observer status).

Energy field has been set as one of the main dimensions of EU-Mediterranean Partnership. In 1997 Trieste Conference, Energy Ministers have made a decision to form Euro-Mediterranean Energy Forum. In 1998, Euro-Med Energy Action Plan is initiated. Under MEDA Programme,

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<sup>108</sup> "Turkey in Europe: More than a promise?" Report of the Independent Commission on Turkey, September 2004, <http://www.independentcommissiononturkey.org/pdfs/english.pdf>, (July 22, 2005)

which is the main cooperation tool for the Mediterranean region, € 3.4 billion is allocated for the period 1994-1999. MEDA II Programme allocated even larger budget of € 5.35 billion in grants for the period 2000-2006. Furthermore, The European Investment Bank allocated € 6.4 billion for aid loans to the Mediterranean and an additional € 1 billion reserve for 2000-2007 periods<sup>109</sup>.

The European Commission announced a Communication to the Council and to the European Parliament on 7 March 2001, for "Enhancing Euro-Mediterranean cooperation on transport and energy". Commission especially pointed out the significance of the Mediterranean partners in two folds. Firstly, it is the Mediterranean countries' geographical proximity to EU, and to countries exporting energy to the EU, e.g. the Gulf and Caucasus. Secondly, some partner countries even have significant oil and gas reserves when considering the EU's priority to secure energy supply.

This partnership has shown EU's interest in energy issues concerning its Mediterranean partners. As being one of the partners, Turkey found the ground for cooperation with EU under the framework of the Euro-Med partnership, to develop regional projects on energy field with the financial help of MEDA Programme.

### **3.2 Turkey's Unique Geostrategical Position as a Future Energy Corridor for Europe**

Turkey's unique geostrategical position in between the continents would give a considerable momentum for EU membership bid. If Turkey turns this position into a trump card in becoming one of the main energy outlets for Europe, her importance for the West and the EU in particular will increase substantially. This could be the new trump card of Turkey for in membership talks with the European Union.

Turkey's geostrategical position is one of her key advantages in world politics. Mehmet Ögütçü stated "It may well be a cliché to describe Turkey as the country where Europe ends

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<sup>109</sup> Financial Cooperation/MEDA Programme,

[http://europa.eu.int/comm/external\\_relations/euromed/meda.htm](http://europa.eu.int/comm/external_relations/euromed/meda.htm), (July 25, 2005)

\* COM (2001) 126 final [http://europa.eu.int/comm/dgs/energy\\_transport/international/relations\\_en.htm](http://europa.eu.int/comm/dgs/energy_transport/international/relations_en.htm), (August 02, 2005)

and Asia begins, but this is particularly true in its strategic position as a bridge between energy supplies from the East and consuming markets in the West”<sup>110</sup>.

### 3.2.1 Neighbors’ Rich Energy Reserves

In this geographical position, Turkey directly or indirectly borders the oil and gas rich areas of the world. Surrounding regions, Middle East, North Africa, Caspian Basin and Russian Federation are all rich in oil and gas reserves\*. From among them, the last reserves were discovered in Caspian Sea. In the Caspian region, Kazakhstan, Turkmenistan and Azerbaijan are the countries that have substantial gas and oil reserves. Even if the proven reserves are far less than the first estimations for the region, it has still considerable oil and gas reserves. Kazakhstan has the largest proven oil and gas reserves in the region (3.3% and 1.7% of the world proven reserves at the end of 2004). Turkmenistan has also considerable proven gas reserves as 1.6%<sup>111</sup>. While Azerbaijan does have smaller reserves in quantity, it is located closer to the European markets. In this context, Turkey is the closest way located between these reserves and European market. Turkey has also linguistic and cultural ties with those energy rich countries that give an important advantage to Turkey.

Secondly, Iran has the world’s second largest gas reserves after Russia. Nevertheless, Iran is importing gas. The idea to export its gas is fairly recent. Mainly for political reasons, Iran is most interested in the European market. In that sense, neighbouring Turkey is the easiest way for Iranian gas to reach Europe, both geographically and in terms of infrastructure availability. However, Iran has to break the US sanctions in order to export its gas effectively to Western markets.

Iraq is the other direct neighbour of Turkey having great amount of proven oil reserves with its share of 9.7% in total world reserves<sup>112</sup>. When Iraq becomes stable and regains its full production capacity after the regime change, it will become an important oil supplier to Europe. Existing, but idle Kerkuk-Ceyhan oil pipeline passing through Turkey will be the main

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<sup>110</sup> Mehmet Ögütçü, “Caspian Energy “Poker Game” and Turkey: Prospects for a New Approach”, the Journal, Vol.8, Art.5 CEPMLP, <http://www.dundee.ac.uk/cepmlp/journal/html/vol8/article8-5.html>, (July 22, 2005)

\* See Appendix I for the Map showing Oil and Natural Gas Reserves in the Countries Neighbouring Turkey.

<sup>111</sup> BP, Statistical Review of World Energy, London, June 2005,

<http://www.bp.com/downloads.do?categoryId=9003093&contentId=7005944>, (July 25, 2005), pp.4, 20

<sup>112</sup> BP, Statistical..., <http://www.bp.com/downloads.do?categoryId=9003093&contentId=7005944>, p. 4



outlet for the Iraqi oil to the European market. Nowadays, pipelines in Iraq are under attacks, so Iraq oil export via Turkey is rather indefinite for the short-term.

Lastly, Russia is the world's largest gas producer with its proven reserves up to 26.7 % of total world reserves. It has also considerable oil reserves as 6.1% share<sup>113</sup>. She is also the most stable producer in the region having the greatest number of infrastructural connections. It is also one of the most important players in the region owing to its imperial ties with the post-Soviet countries. Even though Russia showed a relative weakness in the early 1990s after the collapse of USSR, it recovered its dominant role on the Newly Independent States (NIS) in a short period of time. This so called "near abroad" policy of Russia became the main rival to Turkish and American interests in the Caspian region.

We see that "More than 35 percent of Russian oil exports and substantial quantities of its petroleum products are transported via Turkey (the Black Sea Straits)"<sup>114</sup>. Concerning natural gas, Russia does not hold the idea to transit it via Turkey at the moment. Instead, Russia seeks alternative ways to transport Caspian gas and oil by its own initiatives. Nevertheless, Turkey opposes any route passes through the straits due to environmental reasons. The question if this competition turns into cooperation remains unclear for the near future.

These countries listed in the following two tables are neighbouring countries of Turkey. As it is stated in CEPS paper, "Turkey lies adjacent to countries or regions possessing some 71.8% of the world's proven gas reserves and some 72.7% of the world's proven oil reserves"<sup>115</sup>. This gives an important geostrategical advantage to Turkey in world politics.

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<sup>113</sup> BP, Statistical..., <http://www.bp.com/downloads.do?categoryId=9003093&contentId=7005944>, pp. 4,20

<sup>114</sup> Agata Loskot, **Turkey: and Energy Transit Corridor to the EU**, Warsaw: CES Studies, 2005, p.24

<sup>115</sup> Roberts, p.2

**Table 4**  
**Oil Potentials of Turkey's Neighbours, 2002**

Million tons	Proven reserves	Potential reserves	Exports now	Exports 2010
<b>Kazakhstan</b>	4 000.0	12 551.2	40.0	85.0
<b>Turkmenistan</b>	150.1	5 184.2	2.8	7.5
<b>Azerbaijan</b>	1 364.3	4 365.6	10.4	50.0
<b>Iran</b>	17 162.3		94.6	249.0
<b>Iraq</b>	15 688.9	21 828.1	71.3	298.8
<b>Egypt</b>	504.8		9.6	
<b>Algeria</b>	1 541.6	5 866.3	40.3	
<b>Russia</b>	9 549.8	20 463.8	188.4	

Source: Oil Information 2004, IEA, [www.eia.doe.gov](http://www.eia.doe.gov), news agencies

**Table 5**  
**Gas Potentials of Turkey's Neighbours, 2002**

Billion cubic metres	Proven reserves	Potential reserves	Exports now	Exports 2010
<b>Kazakhstan</b>	1 910.3	2 498.9	6.1	36.0
<b>Turkmenistan</b>	2 009.3	7 496.9	38.8	93.4
<b>Azerbaijan</b>	849.0	990.5	0.0	14.2
<b>Iran</b>	26 602.0		1.3	10.0
<b>Iraq</b>	3 113.0	4 245.0	0.0	10.0
<b>Egypt</b>	1 754.6	3 396.0	0.0	
<b>Algeria</b>	4 528.0	5 150.6	61.3	
<b>Russia</b>	47 544.0		182.4	

Source: Natural Gas Information 2004, IEA, [www.eia.doe.gov](http://www.eia.doe.gov), news agencies

Owing to this location, Turkey clearly stresses her ambition to be one of the main energy outlets for Europe. It is the policy to transform Turkey into a transit corridor for energy resources transported from the East to the Western markets, particularly, European market. However, realisation of this policy depends on an important external factor such as the policy of big powers towards the region.

According to Sabri Sayari<sup>116</sup>:

The transport of Caspian energy to Western markets has been a major source of international political and economic manoeuvring and diplomacy. Producing states (Azerbaijan, Kazakhstan, and Turkmenistan), neighbouring countries (primarily Russia, Turkey, and Iran), western oil companies, and the United States have actively sought to influence the choice concerning the route of new pipelines.

In this pipeline game, Russia can be considered as the country at the other side, the major competitor of Turkey in the region. Russia has fears about the loss of control in the region due to American and Turkish pipeline politics. As Ebel and Menon states, Moscow believes that, at a time of Russian weakness, the United States, in collusion with Turkey and western oil companies, seeks to displace Russia from the Caspian by controlling the region's energy wealth and pipeline routes<sup>117</sup>. Rather exaggerated, Russia may not be wrong. On the other hand, Russia has many ways to exert influence over the region through its old imperial links; the infrastructure all passes through Russia and Russia has familiarity with the whole region. Therefore, the pipeline game would be rather more severe if all parties are to use their weapons.

On the other hand, The United States (US) policy towards the region clearly backs Turkey's role. The Washington administration has its own reasons and goals for supporting Turkey in the region. First of all, Washington seeks to control the energy markets in the region through efforts to ensure US dominance and through promotion of democracy and market economy. Secondly, the US desires to undermine the position of Iran in both in the Caucasus and in the Middle East as her main rival. In doing so, US administration imposed political and economic sanctions on Iran that impedes many American investments in Iran energy market by private companies. And lastly, the US seeks to reduce the role of Russia in the post-Soviet and European energy markets. The US administration also aims at limiting Russia's influence on the countries of Central Asia and Caucasus anyway.

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<sup>116</sup> Sabri Sayari, "Turkey's Caspian Interests: Economic and Security Opportunities" in **Energy and Conflict in Central Asia and the Caucasus** edited by Robert Ebel and Rajan Menon, The National Bureau of Asian Research, Oxford: Rowman and Littlefield Publishers, Inc., 2000, p.229.

<sup>117</sup> Ebel and Menon, p. 7

Due to the reasons fore mentioned above, Washington administration backs all projects passing through Turkey. From among them, Baku-Tbilisi-Ceyhan and Baku-Tbilisi-Erzurum have top priority. Therefore, Iran and Russia will be kept outside of the game in the region through these projects, BTC for oil and BTE for natural gas transportation.

European Union has also a supportive policy for Turkey in becoming an energy corridor. Even it was not a clear signal before, EU starts to declare its favour for the projects passing through Turkey and reaching Europe. EU has also its own reasons for this support. The main one is the will to diversify its supplies regarding energy carriers. Green Paper reveals that, EU is mainly dependent on the fossil fuels, as 78% of oil and 36% of natural gas is imported and it is foreseen that in 2020 EU's dependency on imported oil will rise to 90% and imported gas to 70%<sup>118</sup>. This dependency is highly on Russian natural gas as 48% and Middle East oil as 45%. In order to overcome this dependency, EU is clearly looking for multiple supply sources and routes, particularly for gas supplies. Here, regions that neighbour Turkey are important actual or potential suppliers of energy resources to the EU.

European Union also wants to reduce or at least stabilises Russia's big share in EU's energy imports. For the security of energy supply in Europe, depending only on Russian gas is a major threat. Russia's Gazprom accounts for well over 95% of Russian gas exports in a monopolistic manner. EU thinks that the greater volume of gas supplies via Turkey will make greater pressure on Russia's Gazprom to operate on a commercial basis, rather than as a monopoly, in its dealings with the European Union. Otherwise, Gazprom will manipulate the prices and the amounts of gas to the EU as her wishes. This would lead to the insecurity of energy supply for the EU.

Lastly, as Turkey starts accession negotiations with EU for the full membership, EU has reasons to see Turkey her energy supplier through several pipeline projects reaching Europe via Turkey. When Turkey becomes a full member, all energy routes will be in the borders of EU officially. No doubt she would secure her energy supply through direct control over energy routes.

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<sup>118</sup> European Commission Green Paper: Towards..., <http://www.europa.eu.int/scadplus/leg/en/lvb/l27037.htm>, (December 20, 2004)

### 3.2.2 Main Trade Routes for Caspian Energy

This marketing energy resource, particularly Caspian resources, is a great game in the world politics. There are proponents and opponents of several routes some in favour and some against Turkey's policy. Currently, there are mainly four pipeline routes available. These are Northern routes, Southern routes, Western routes, and Eastern routes.

Northern routes are the ones advocated by the Russians. Both Kazakhstan and Azerbaijan could join existing Russian pipelines, taking their oil to Novorossiysk on the Black Sea coast. The problems on this route are the Chechnya, a highly unstable region, and the difficult shipment conditions of the harbour in winter season. Besides, both Azerbaijan and Kazakhstan prefers lesser Russian dominance in the region. Nevertheless, "the real problem is this: Russia as the holder of the world's largest reserves of natural gas can hardly be excluded from the growing world gas market, thus making the Northern route a real option"<sup>119</sup>.

Western routes are the ones preferred by the United States, Turkey, Azerbaijani and Georgia. All routes in this direction exclude Russian territories. There are two different options on this route; one is Baku-Supsa and the other is Baku-Tbilisi-Ceyhan. Although both are supported by the US, Turkey has pushed the realization of the latter. The main legitimate reason of Turkey is the heavy tanker traffic through the Straits, particularly the Bosphorus where 12 million people live in the city of Istanbul.

Iran and world oil companies favour southern routes mainly due to its economic advantages. Those pipelines passing through Iran are cheaper to build (under \$1 billion), pass relatively safer territories, and pose no serious environmental hazard<sup>120</sup>. Nevertheless, United States is opposed to Southern routes due to Iran factor.

China favours the Eastern routes for its own energy needs. Nowadays, China and Kazakhstan has been building a 2000-mile long and extremely expensive pipeline (\$3.5-5.0 billion). Construction of this commercially unattractive pipeline is proceeding, as only China needs it as a strategic necessity.

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<sup>119</sup> Hooshang Amirahmadi, "Pipeline Politics in the Region" in *The Caspian Region at a Crossroad* edited by Hooshang Amirahmadi, London, 2000, p.165

<sup>120</sup> Amirahmadi, p.166

From among those routes, Northern and Western routes are the most competing ones in the region and probably the most feasible ones for their realisation. Although the Western route has more advocates than the Northern one, it is still too early to assess its dominance, as Russia is still an important player in the region.

On the Western route, there are several pipeline projects under construction or under planning session both for oil and natural gas transport from the Caspian to Europe passing through Turkey. In constructing these routes, first of all, Turkey intends to meet its needs, particularly regarding gas pipeline projects. However, as 2001 economic crisis is not foreseen, the energy projections on energy demand for Turkey for forthcoming years were calculated as too high compared with the actual demand. This policy resulted in oversupply problem in natural gas for forthcoming years, and thus created serious crises in the former Turkish government. As a result, Turkey still strives to make deals with Russia and Iran to cut either in price or in delivery amounts of the natural gas. According to gas projections before the crisis, Turkey is expected to use 54 billion cubic meters natural gas by 2010. According to Cumhuriyet, this projection was made according to 8-9% increase in energy demand per year. However, 2001 economic crisis brought about sudden decrease in energy demand as minus 1.1 % per year<sup>121</sup>. Despite discussions about these gas agreements leading oversupply for the short-term, it is projected that Turkey would need more gas in medium-term. This is mainly because the fact that one of the Turkey's major gas import contracts with Russia will be expired in 2011. Therefore, Turkey will probably be in need of gas with its dynamic economy. And Turkey expects to meet its gas and oil demand through the existing and projected pipelines.

These pipelines will also make East-West energy axis a reality. In this axis, the most important and the most discussed pipeline is the BTC oil pipeline, transporting Azeri and Kazakh oil to Turkish Mediterranean port of Ceyhan. This 1760 km length pipeline costs at \$ 4 billion. There is a great game and story on this pipeline about its feasibility especially in commercial terms. Despite all obstructions before the realisation of the project mainly from Russia and some oil companies, it recently completed and the first oil is given to the pipeline on 25<sup>th</sup> of May this year. It meant that America and Turkey win the game about its realisation. On the same day, Kazakhstan also signed a contract and became oil supplier to the pipeline. According to the

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<sup>121</sup> "Avrupa Birliđi için Türkiye'nin Enerji Kozu", *Dünya Enerji*, sayı.22, Ağustos 2002, p.40

projections, this pipeline will carry 1 billion barrel crude oil per day in order to be economic. Whether or not it reaches this amount is a matter of time.

On the other hand, the realisation of BTC pipeline has a legitimate environmental reason, that they bypass the straits. As Turkey is strongly opposed to heavy tanker traffic along the Turkish straits, she always supports the projects bypassing them. Besides BTC, there are two realistic bypass routes that are Burgas-Alexandroupolis and Kiyikoy-İbrikbaba route. The former one is a Russian project backed by Russian oil producers and Moscow. The latter one is a Russian-Turkish undertaking. This latter one is quite likely to realize as its cost is relatively lower (\$ 900 million) and two parties show interest for it.

On the gas side, currently, there are several gas pipelines connecting Turkey with the Eurasian deposits\*. The Russian route is the most important and the largest one. This route includes Trans-Balkan gas pipeline and recently built Blue Stream under the Black Sea. Another pipeline connecting Iran and Turkey has also been operational for two years. In the short-term, Baku-Tbilisi-Erzurum, officially called the South Caucasus Pipeline, will carry Azeri gas to Turkey within 1-2 years. This pipeline will use the same right way with BTC oil pipeline. So it would be easier to construct it. When it is completed, it will have considerable gas carrying capacity. "The SCP will initially have a capacity of around 7-8 bcm/y, but documentation produced by BP in March 2004 showed an eventual planned capacity level of 20 bcm/y"<sup>122</sup>. Moreover, Turkmenistan President Niyazov rejects a serious pipeline project carrying gas from Turkmenistan to Turkey under Caspian Sea. This would be an important line carrying gas from Turkmenistan to Europe. Despite the rejection, this project may turn into the reality in the long run.

Alongside with the existing pipelines and the nearly completed ones, there are some other important gas pipeline projects connecting Turkey with Europe\*\*. First one is an interconnector gas pipeline between Turkey and Greece from Ankara to Komotimi. This pipeline project was signed in 2003 by the two parties concerned and the European Commission and due to open at the end of 2006. This line will be able to carry gas up to 11 bcm/y. Besides this; there is another project as a further interconnector between the southern Italian port of Otranto and a

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\* See Appendix II for the table showing major existing and projected pipelines across Turkish territory

<sup>122</sup> Roberts, p.6

\*\* See Appendix III for the map showing main existing and planned gas pipelines across Turkey

Greek terminal at Stavrilimenas. This project is also supported by the European Union and both of them will be co-financed by the EU budget. These two lines start from Turkey reaching Italy will be one of the main projects in forming “East-West Energy Corridor”.

There is another important gas pipeline project connecting Turkey and Central Europe. This is called the “Nabucco Project”. This route will reach Austria and possibly the Czech Republic through Bulgaria, Romania and Hungary. It will have the capacity to carry 20-30 bcm/y gas. Its feasibility study is ready and the line itself is to be completed by 2009-2010. This pipeline project is crucial as it will make Turkey one of the main alternative routes for the Central Europe, and will enforce Turkey’s position with regard to being energy outlet of Europe.

The third project to Europe is the “Balkan Project”. This is the least advanced project for the time being. It basically plans to bring gas to Western Balkan countries such as Former Yugoslav Republic of Macedonia, Albania, Yugoslavia, Bosnia-Herzegovina, Croatia and Slovenia. However, there are doubts about its realisation, as it did not attract a real commercial interest. On the route, Romania and Croatia have small gas markets. Moreover, the countries on the route suffer from political and regulatory uncertainties and are mountainous. Therefore, it looks more like a long-term project.

Realizations of these several pipeline projects depend on support from the main energy importer, EU. At the moment, European Union currently seems to support Turkey for her efforts.

The Commission declares this by saying that<sup>123</sup>:

Turkey is encouraged to continue its efforts to improve its gas and electricity interconnections, which are essential in order to meet the needs of the internal market, to strengthen the security of supply and also the future Energy Community in South East Europe.

On the other hand, the US, the biggest player in the region seems to keep on its support for the project of creating an East-West energy axis passing through Turkey. If two powers have

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<sup>123</sup> 2004 Regular Report..., [http://europa.eu.int/comm/enlargement/report\\_2004/pdf/rr\\_tr\\_2004\\_en.pdf](http://europa.eu.int/comm/enlargement/report_2004/pdf/rr_tr_2004_en.pdf), p.116



strong desire to give Turkey such a mission, these projects above would easily make Turkey an important alternative route for energy. This will make powerful Turkey's hand in EU membership and in return make EU more powerful in supplying her energy.

## CONCLUSIONS

All the initiatives for adapting Turkey's energy policy to that of EU will bring Turkey a more rational energy policy. So to speak, Turkey will have an energy policy, which is individual oriented, secure in energy supplies and environmentally respectful. Turkey will also be in powerful position vis-à-vis the energy related problems of the future such as total depletion of world oil reserves and its consequences in world politics.

Compatibility of Turkey's energy policy with that of EU would bring out number of benefits for Turkey. Through market liberalisation, energy market will be open to all customers and producers. Expected results of this opening are price reductions and better services due to right to choose. On the other hand, some possible negative results of the opening in employment, and in ensuring public service obligations would be prevented through the adoption of adequate measures of EU energy policy.

Turkey would be able to secure its energy supply through adopting and implementing initiatives of the union. As not being a self-sufficient country concerning energy, Turkey is in need of definite projections for her energy future. Holding oil stocks, prioritising renewable energy, and pipeline projects to carry oil and gas reserves will be the measures to provide a more secure future in energy for Turkey.

Compatibility with EU energy policy will also trigger a new phase concerning environmental issues in Turkey. Adoption of EU acquis of environmentally related energy measures will bring in benefits for life quality and for economy to Turkey. This adoption will lessen CO<sub>2</sub> emissions, make energy use efficient, in other words decrease energy intensity of the economy and initiate renewable energy programme. Therefore, a more balanced and respectful energy policy will be reached with regard to environment.

On the other hand, this alignment will also be for the benefit of EU. EU is in need of energy more than ever, and she needs to secure her energy supply. In this context, Turkey would play an important role owing to several planned and already constructed pipelines carrying gas and

oil to Europe. Therefore, EU would co-operate with Turkey in energy sector for securing energy supply.

In order to realize the fore mentioned benefits, Turkey should have an energy policy compatible with that of EU. In this thesis, we mainly made a compatibility analysis between the energy policy of Turkey and that of the EU. In order to reach a conclusion whether they are compatible or not, we firstly examined EU's energy policy by considering three pillars of the policy, namely common market, security of energy supply and environmental protection. The historical development of the policy is also given in order to reach better understanding of the background of today's developments.

In the second part of the thesis, we mainly discussed Turkey's progress in aligning its energy policy to that of the EU. In the very same part, three pillars of EU energy policy once more were taken as the main reference points for the analysis.

At the last part of the thesis, energy is taken as one of the most significant trump cards of Turkey in full membership to EU. This last part mainly stressed the significance of Turkey in securing European Union's energy supply.

In the light of the sector examination in both EU and Turkey, and with special reference to Regular Report on Turkey's Progress, we can conclude that Turkey's energy policy is not yet fully compatible with that of the European Union. Whereas Turkey has made some progress concerning the establishment of free energy market and particularly security of energy supply, Turkey has made no progress with regard to the last pillar of EU energy policy that is environmental protection.

As a matter of fact, Accession Negotiations in energy chapter will be a challenge for Turkey. Turkey will be challenged by the EU in taking more steps particularly with respect to climate change, renewable energy, and energy efficiency during the negotiations, whereas she will be more confidential regarding the market openings in energy sector, and the security of energy supply. On the other hand, construction of ongoing pipeline projects would be useful for Turkey to close the chapter in a more reasonable period of time, as it will motivate both the Union and Turkey. Construction of the pipelines will also enhance Turkey's strategic

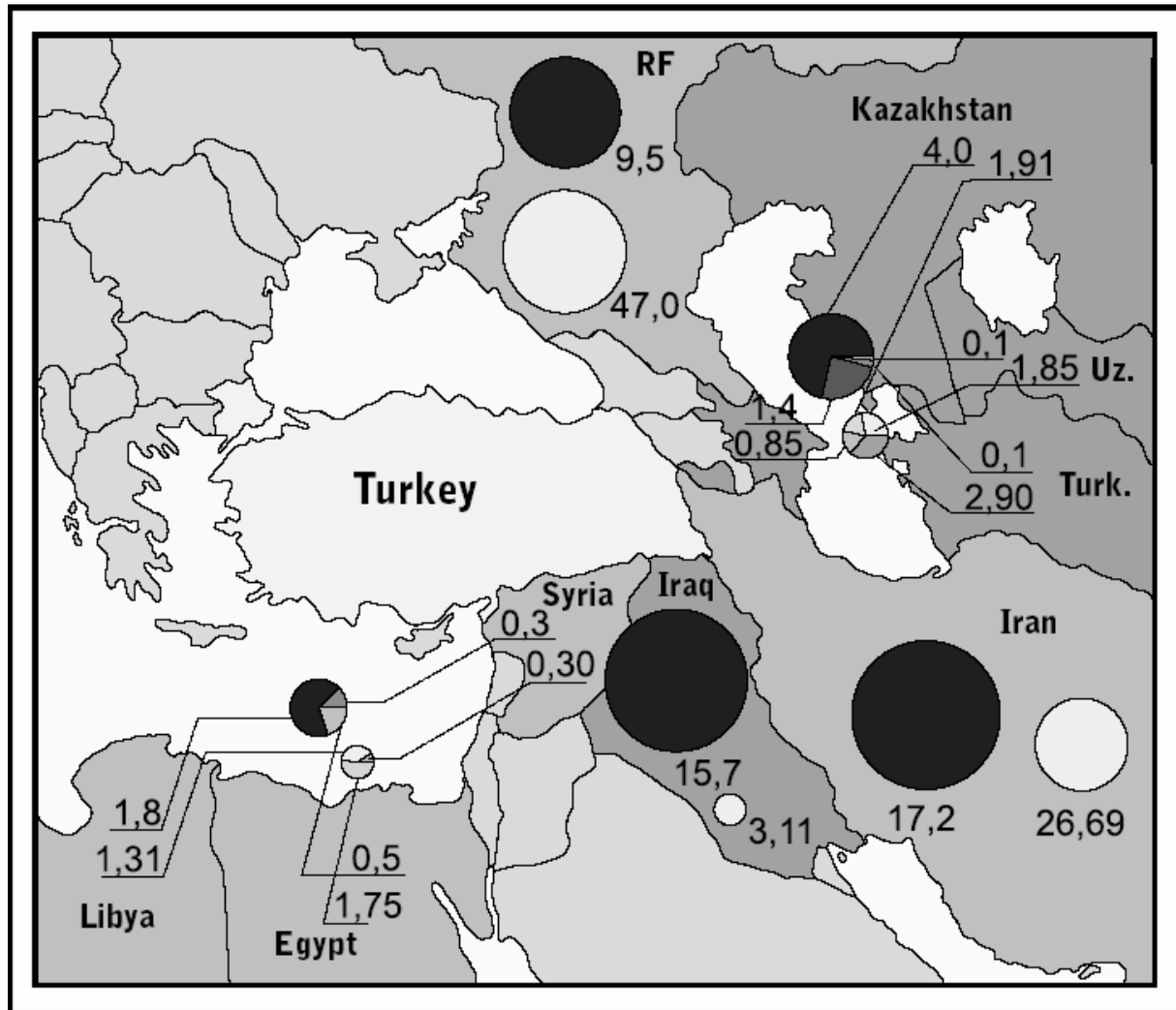
significance, as Turkey would be one of the main energy outlets for the Western markets, particularly for Europe.

To conclude, energy chapter will be a challenging one in accession negotiations. However, if Turkey finds out the significant role of energy for her future, aligns with the Community acquis in energy sector, and succeeds in becoming main route in East-West energy corridor, she will benefit from the results both strategically and economically. On the other hand, through this aligning, EU will find a strategic partner in energy issues. Consequently, both the EU and Turkey will be more powerful in world politics.

## APPENDICES

APPENDIX I

Map: Oil and Natural Gas Reserves in the Countries Neighbouring Turkey-2003



Source: Agata LOSKOT, CES Studies, "Turkey: an Energy Transit Corridor to the EU?", p. 25, 2005, Warsaw, p.29

\* Crude Oil reserves shown in billion tonnes, and natural gas in trillions m<sup>3</sup>.

## APPENDIX II

**Table: Major Existing and Projected Gas Pipelines across Turkish Territory**

Project/route	Length (km)	Capacity (billion cubic metres/year)	Operator/sponsor	Cost (\$)	Status, comments
<b>Trans-Balkan (Russia-Ukraine-Moldova-Romania-Bulgaria-Greece and Macedonia/Turkey)</b>	750	20 (extended)	Gazprom and transit companies in respective countries	N/A	Operational
<b>Blue Stream</b>	370 km in Russia, 396 on Black Sea bottom	16	Gazprom and ENI	3,4 billion	Operational since 2002, 25-year contract between Turkey and FR, capacity not utilised fully (1 billion cubic metres w 2003), 16 billion cubic metres as of 2009
<b>Iran-Turkey</b>	520	3-10 (projected increase to 2007)	NIGC, Botas	N/A	Operational since 2002
<b>BTE</b>	960	7-22	BP-Statoil consortium	900 million	Construction works about to begin, to be completed by 2006
<b>Turkey-Greece</b>	285	3,5-11	Botas, Depa	300 million	To be completed by 2006 EU support

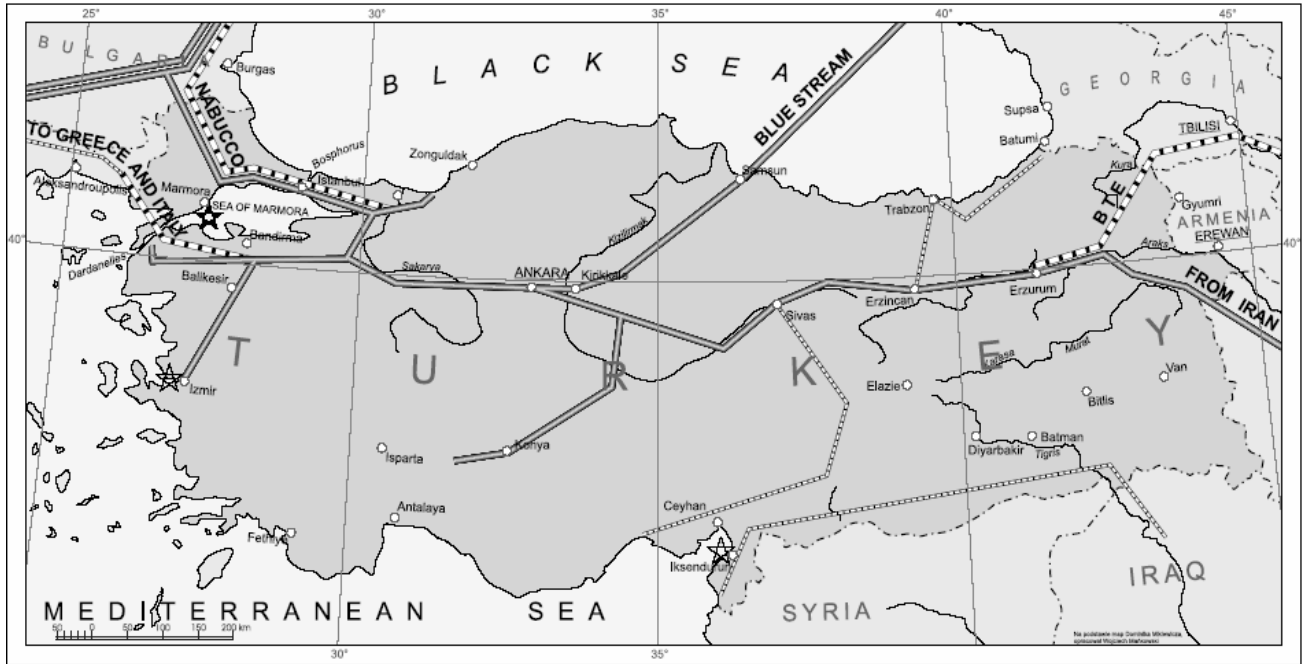
<b>Greece–Italy</b>	225	N/A	Edison Gas, Depa	N/A	Proposal, EU support
<b>Nabucco (Turkey– Baumgarten)</b>	3400	In Turkey: 25-30 In Austria: 17-20	Botas, Bulgargaz, Transgaz, MOL, OMV	4,4 billion	Feasibility study by the end of 2004, EU support
<b>Balkan (Turkey- -Greece-Macedonia- -Serbia-BH-Croatia- -Slovenia-Austria)</b>	1150	N/A	N/A	N/A	Proposal
<b>Bulgaria–Greece– –Italy</b>	N/A	N/A	Gazprom	N/A	Proposed measure to secure market position and control of gas transit in the region

**Source:** Agata LOSKOT, CES Studies, “Turkey: an Energy Transit Corridor to the EU?”, p. 25, 2005, Warsaw, p.25



APPENDIX III

Map: Main Existing and Planned Gas Pipelines across Turkey



LEGEND:   
 — Gas pipelines   
 - - - - Planned pipelines   
 - - - - Planned pipelines (less possible)   
 ★ LNG terminals   
 ☆ Planned LNG terminals   
 ○ Cities   
 - - - - Country border

Source: Agata LOSKOT, CES Studies, “Turkey: an Energy Transit Corridor to the EU?” p. 25, 2005, Warsaw, p.30

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